VOL. XXI NEW YORK—THURSDAY, JULY 29, 1909—CHICAGO No. 5

THE AUTOMOBILE

Glidden Tour nearing Finish

Greeted by a "Prairie Schooner" in Colorado.

Ready for the night's rest at Council Bluffs

Where Nebraska Quicksands were Treacherous

Substantial Western Hospitality

HUGO, COL., July 27—Thirteen of the thirty cars which started from Detroit on the morning of July 12 in the Sixth A. A. A. Tour to-day renewed the struggle with perfect scores: twelve others are in a more or less penalized condition; and five have been withdrawn, though three are still participating as non-contestants. Four running days remain, during which 740.5 miles are to be covered of the 2,643 grand total mileage. One of these four days—the final one from

Entering Denver, the Extreme Western Limit of the Tour, at the End of the Week's Run from Minneapolis

Salina to Kansas City—is said to be the hardest of the entire tour. This day is looked upon as the one which will send some of the clean score contingent to the hands of the technical examiners with blemished records, though it is most probable that this concluding looking-over by the experts will prevent any such thing as a tie for any one of the three trophies. This is the list of unmarked cars which this morning started for Hugo, Colorado:

GLIDDEN

No. 1 Premier (Jay).
No. 2 Premier (Hammond).
No. 5 Marmon (Marmon).
No. 6 Maxwell (Gager).
No. 8 Pierce-Arrow (Dey).
No. 9 Pierce-Arrow (Winchester).
No. 14 White Steamer (Searles).

DETROIT

No. 51 American Simplex (Woods).

HOWER

No. 101 Moline (Wicke).
No. 105 Chalmers-Detroit (Machesky).
No. 108 Pierce-Arrow (Williams).
No. 109 Pierce-Arrow (Schofeld).
No. 114 Lexington (Moore).

Denver has given the party a wealth of entertainment, and the program has been diversified, well planned, and carried out. The Denver Motor Club appointed committees which have been on their job ever since the grime-complexioned tourists Saturday last entered the hospitable confines of this energetic city of the Rockies, and if one had complaint to file it, would take note of the fact that the hosts were determined that the good things provided should not pass unheeded. Of course the visitors had to be shown what a first-class city looked like, this happening the greater part of Sunday; next came the banquet in the evening at Lakeside; on Monday followed the trip to Mt. McClellan, where a grand view of the Rockies unfolded itself, and in the evening was a finale at the rooms of the club.

Fording a Stream That Intersected the Colorado Prairie

Second Week Was a Hard One

The second week of the tour was considerably harder than the first one in that the cars had six days of steady going, covering 1077.2 miles at approximately a 20-mile schedule for the class A or big cars. The route was over dirt and gumbo roads, with not a drop of rain, hot weather and dry roads being the standing order for all six days. Dirt roads generally mean good roads in dry weather with plenty of dust, but the Glidden army met miles of bad dust roads, with deep ruts, waterbreakers, and high culverts that tested springs and shook tonneau occupants to desperation. For the first time in a Glidden tour, three of the daily trips have exceeded the double century mark, and a fourth was within four miles of the 200 mark.

It was freely predicted that the second week would be the real car tester, but such was not the case, and the cars made a better showing on the six days of the second week than they did on the five of the opening one, and besides traveled 1077.2 miles as compared with but 822.8 on the first week.

In all seventeen perfect scores out of the thirty starters have gone, leaving an unlucky thirteen to face the four-day eastward leg to Kansas City. Of the seventeen penalized nine were in the first week and only eight in the second week.

The past week saw four Glidden perfects go, namely: Frank Wing's Marmon, O. P. Bernhart's Jewel, A. Y. Bartholomew's Glide, and Buse's Thomas.

The Glidden ranks suffered more last week than did the Hower contingent, and the week proved a veritable Waterloo for the Detroit trophy class in that two of the three lost their clean standing. But two perfect-score Hower contestants lost out, Molines Nos. 100 and 102; and in the Detroit class the two losers are Bemp's Chalmers-Detroit and Waltman's Premier.

The troubles that arose last week in a majority of cases were of a different nature from those of the preceding week, and undoubtedly were the result of the continued knocking the cars received from day to day, whereas those of the opening week

were in the majority of cases the result of an extreme incident which might be termed a minor accident. One example will suffice. During the present week three perfect scores have been lost due to breaking or leaking of the gasoline line. One was due to the gasoline pipe rubbing against the apron, another to a loosened flange, and a third to vibration.

The much-talked-of spring trouble at last appeared, though only one car had trouble in this respect, it being No. 10 Glide. Before the run it was decided that spring breakings would be legion, but the exact opposite is proving to be the case. Heretofore spring breaking has been a factor in car troubles, but not so this year, and it is reasonable to assume that the experiences of former years have proven a benefit. There have been a couple of cases of bolts breaking in wheel hubs and other cases of nuts on these bolts coming loose and new bolts being used. This is undoubtedly due to continued road use.

It is interesting to note that of the nine cars that were penalized during the first week everyone of them excepting the No. 112 Mason had additional penalties added during last week. This is an expected condition, and the Mason exception may be explained in that its penalty on the opening week was simply for breaking a pet cock.

The honors of the tour so far go to the Pierce entry of four cars, all of which are running with perfect scores, and the majority of which have trailed the chairman's car into the night stop nearly every day. The Pierce is the only multiple entry—an entry of more than one—which has a 100 per cent. perfect score standing. There are, however, several cases of individual perfect scores standing where makers entered one car and which is still perfect, examples of this being White, American, Simplex, and Lexington. Several of the entrants of more than one car, while not 100 per cent., are in good shape. Two of the three Premier entries are perfect; two out of the three Chalmers-Detroits are perfect. One of the two Maxwells remains perfect, as does one of the two Marmons.

The thirteen perfect score cars have been making remarkable running from day to day. The majority of them are first in at the checking stations, and they are often away early in the morning. The Lexington has been an early arrival at the night stops, the Pierces have generally been well in the van, and the Premiers have been well up, but the drivers have not been taking any chances. The Moline cars generally keep well bunched. The White has been run conservatively from the start, going out well toward the last end of the cavalcade each day, and not checking in much ahead of the scheduled time.

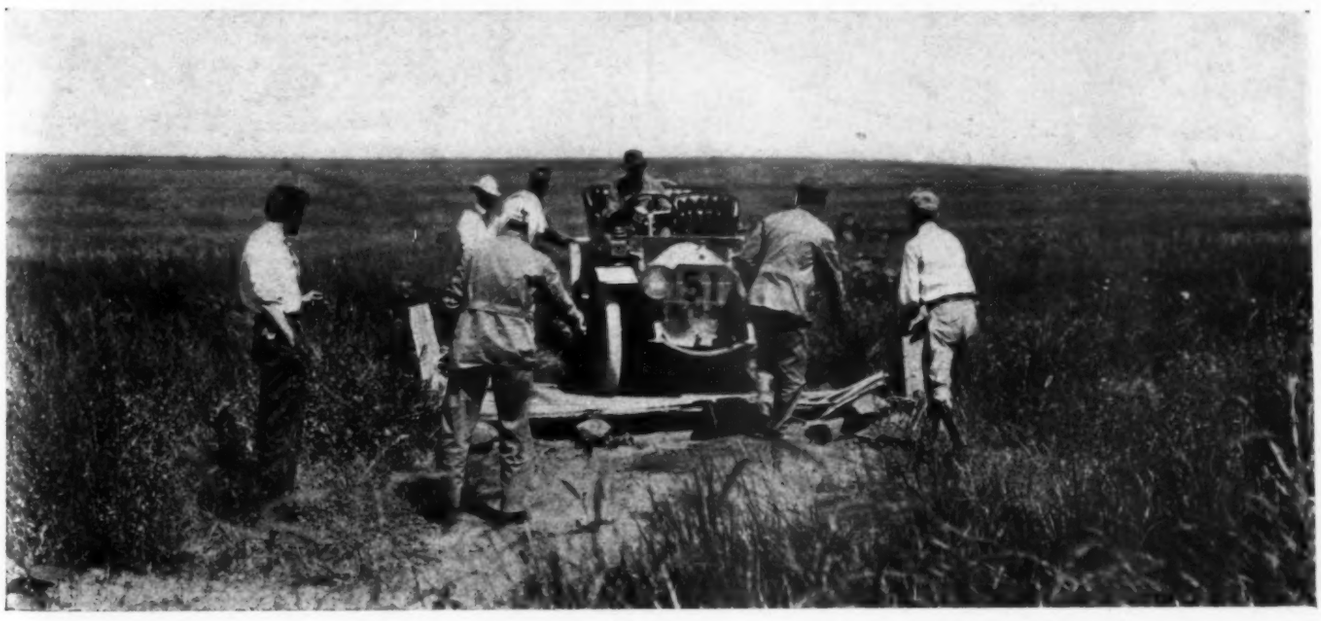
Pullman Train Where the Tourists Ate and Slept

NOTED ALONG THE WESTERN TRAIL

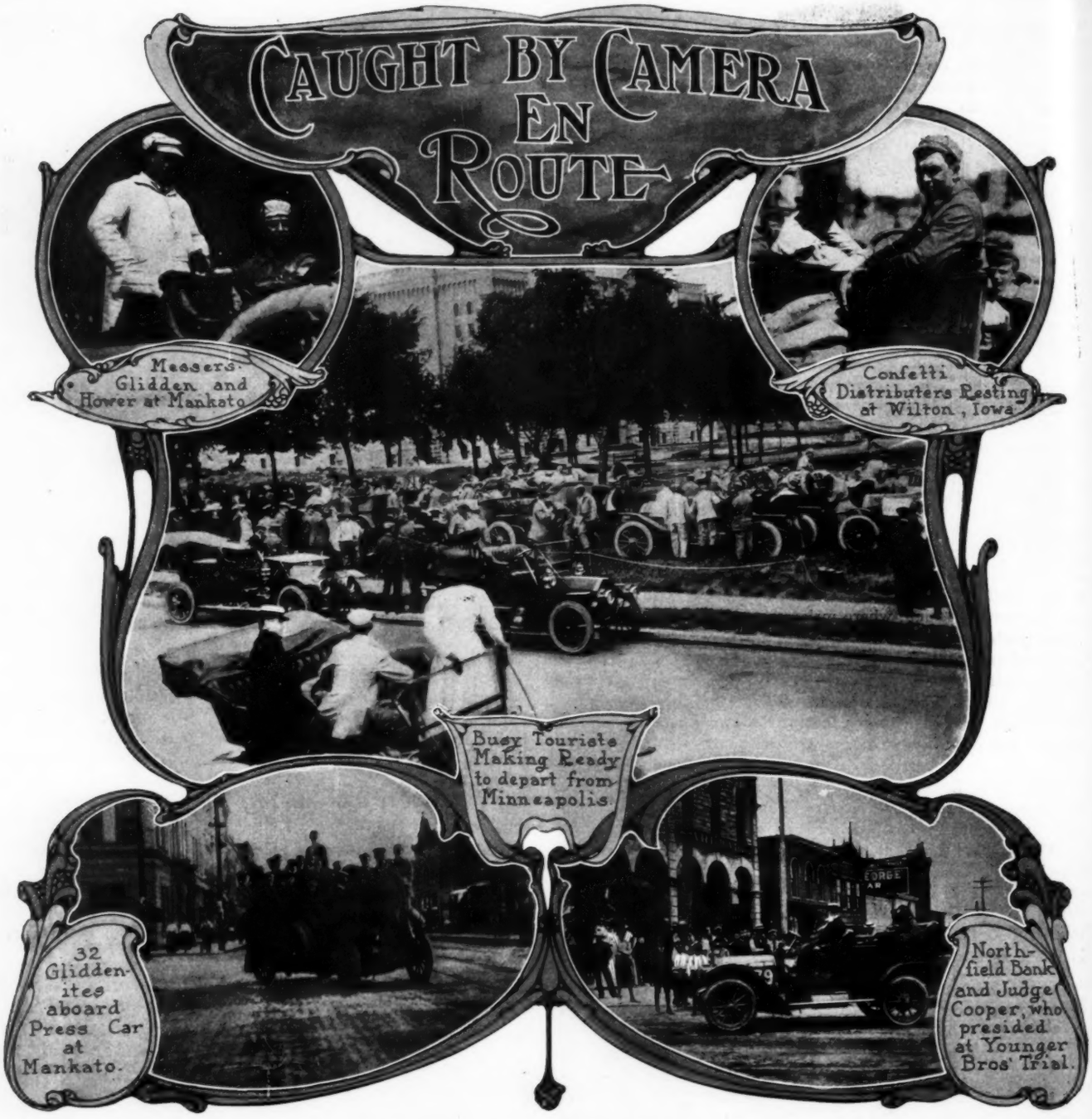
At a Little Colorado Town, consisting of a store and two or three houses and unlimited prairie land all around, named Bignell, the press car stopped. Immediately the dozen inhabitants were about the car. "Our town," said one, "is but a few weeks old, but come back next year (somehow these boomers in the West like to talk one for themselves all the time) and we will show you a town of several thousand people." When asked in regard to the name Bignell, a genuine cowgirl on horseback, if ever there was one, modestly said that the city—she called it so—was hers.

In a Town 50 Miles from Kearney an old man reverently laid his hands upon a press car, stepped back, and said: "My, but I wish they had had those when I was young. You fellers look healthy. I was that way when a man kicked me out of the side door of a Pullman car twenty-five years ago, and here I am. I've never been away since." All of which goes to show that some fellows stick close to locations that are forced upon them by circumstances.

The Three R's, reading, 'riting and 'rithmetic, enter into some of the daily paper stories from the tour. The press men know from reading what their papers want; they know how to write; and the multiplication does the rest. Incidents are frequently magnified and sent broadcast over the country to worry the folks of the men most interested.



The Prairie Roads in Some Sections Had Bridges That Required Repairs Before Risking Passage—Simplex on Bridge


Caught By Camera En Route
Messers. Glidden and Hower at Mankato
Confetti Distributers Resting at Wilton, Iowa
Busy Tourists Making Ready to depart from Minneapolis
32 Glidden-ites aboard Press Car at Mankato.
Northfield Bank and Judge Cooper, who presided at Younger Bros' Trial.

DAILY PROGRESS FROM FORT DODGE, IA., TO HUGO, COL.

MORE strenuous work and a settling down to the reality that it was a contest, not a pleasure jaunt, marked the third and hardest week of the tour. Passing through but three States, the tourists saw considerable change in the road surfaces, which changed for the worse, and a particularly noticeable difference in the elevation, a rise of about eight feet per mile marking over half of the distance traveled. While the penalties were few, still a number of cars were taken out of the perfect class.

EIGHTH DAY—FT. DODGE TO COUNCIL BLUFFS

(196.0 Miles)

COUNCIL BLUFFS, IA., July 21—Despite two detours which swelled the mileage somewhat, and an advance alarum that the run would be a "sockdologer," the journey here from Fort Dodge was accomplished almost without a whimper from the sturdy motor travelers. The 9 hours 42 minutes schedule allowance proved more than ample for all concerned. It's a fair guess that the two-car delegation from the Council Bluffs Automobile Club, which went to Fort Dodge to escort Pilot Lewis in his confetti strewing, underestimated the capabilities of the present tour participants, and mayhaps they did not give sufficient credit to the really excellent roads contained in to-day's route. While there were occasional stretches that were not strictly first class, and grades now and then intruded that caused the use of secondary speeds, the highway averaged as a whole better than anything yet met with on the tour.

Before departure from Fort Dodge, Pathfinder Lewis received a letter from Henry Haag, an autoing good roads enthusiast of Jefferson, who wrote as follows:

"It is a hard matter to make good roads when the weather conditions are constantly against us. However, I have made a special

effort to have Greene county roads good for the Glidden tourists. The entire 35 miles through Greene county have been gone over several times with the big grader, and I have been over the roads repeatedly in the past week, filled all the approaches to bridges and culverts and fixed all the bad places. I have a full force out to-day for the final smoothing, and I believe you will find the 35 miles as good, if not better, than any other stretch of 35 miles in the State. We want to do all we can to make your trip through our county pleasant, safe and fast."

It is safe to say that every car to-day put in its best licks over this 35-mile stretch, and they were sorry when it came to an end. As the flying procession passed through Jefferson, only a couple of the cars took time to stop and express appreciation to Mr. Haag for his labors in their behalf, though all gave absent thanks later when they learned that he was the man responsible for their enjoyment.

Glidden was a sleepy sort of town which figured in to-day's route, and it was natural to suppose that there might be some "doings" when the trophy donor passed through. But when he did come along in Chairman Hower's car the only sight that the half-awake people of Glidden saw of Glidden was a streak of dust in the center of which floated an American flag. In consequence there is no mention here of what Glidden said to the good people of Glidden.

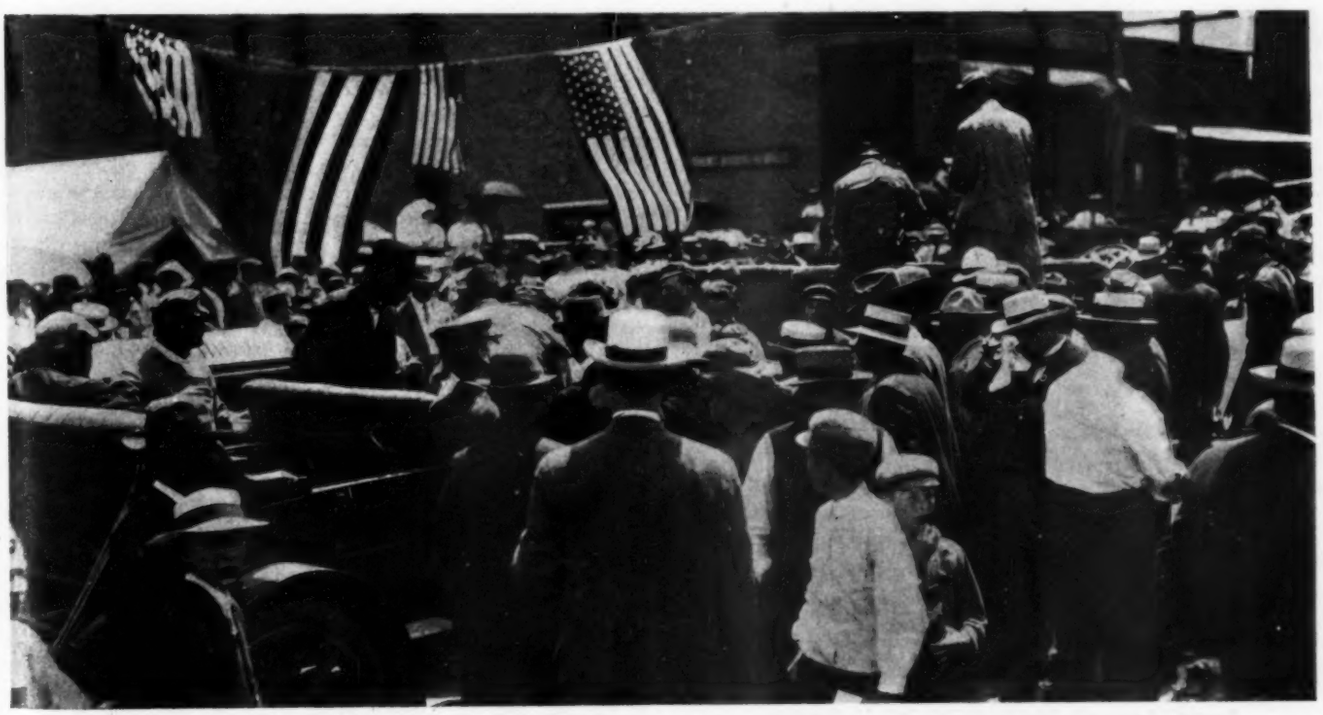
Originally to-night's stop was placed at Omaha. But that city is yet a dead one, as far as the A. A. A. is concerned, and the vigorous insistence of Council Bluffs, through its club member of the national body, made the selection of this hustling city an imperative proposition. As soon as the dust-caked visitors arrived in the public square, they were escorted to the Elks' club, where there was opportunity for exterior and interior washing. A band concert in Bayliss Park enlivened the finishing of the run, after which the entire party were conveyed to Lake Manawa for a good swim and a boat ride. In the evening came a banquet at the Grand Hotel, where in addition to Glidden, Hower, Lewis, and other tour notables, there sat Dr. T. B. Lacey, president of the Iowa State Automobile Association; Dr. Donald Macrae, president of the Council Bluffs Club, and W. R. McKeen, president of the Omaha Automobile Club. Of course there was speechmaking and compliments galore, and as a wind-up of the entertaining there followed a fine display of fireworks from the highest point in Fairmount Park.

Eight Cars Met with Penalizations—High speed was not conducive to the maintaining of perfect records, as it soon became evident, for the penalizations fell thicker and in more important parts than in any previous day of this tour. Eight cars were touched when the observers' cards were given full consideration, though none were late. All through the day the men at the wheel had been driving hard, with the expectation of finding terrible conditions ahead. In addition to there being so many marks scattered about, was the fact that six had previously been unsmirched. They were the Marmon, driven by Wing; the Jewel, driven by Bernhart; the Glide, driven by Bartholomew; the Premier, driven by Waltman, and the Molines, driven by Van Der Voort and Gregory. The other two cars which had received penalties before to-day were the Chalmers-Detroit touring car and the Jewel roadster.

The Chalmers was given 19.1 points, divided as follows: 1.6 points, for a new connecting rod bearing; 2.9 points, for inspecting two crankshaft bearings; 14 points, for labor in putting in the new bearing, and .6 point, for the use of an outside tool, a socket wrench. For tightening the hub flange bolts, and the material used—bolts—the Jewel touring car, driven by Bernhart, was given 16 marks. The Glide touring car, with Bartholomew up, had to have its steering arm repaired, the penalty being 8 points for labor and the same amount for material, the total being a loss of 16 points.

When the Premier toy tonneau car was penalized .8 of a point for labor connected with slipping a hose over a leaking gasoline feed pipe, it was the first of the Detroit trophy trio to receive a penalty. The pipe had chafed on the dust pan, and inasmuch as the piece of rubber used was taken from the gas lamp connections, no marks were given for material.

In the Hower trophy class there were three sets of marks, two being against the Molines, which had a three-car perfect team until then. The car driven by C. H. Van Der Voort had to open its crankcase to remove a piece of steel which was making itself heard, and the labor required 31 minutes, consequently a loss of 3.1 points. The other car, driven by Gregory, was stopped to replace a taper pin in the camshaft gear hub, and to replace a cap screw in the water inlet flange, the total points being 16.1. The third Howerite to have additions made to its



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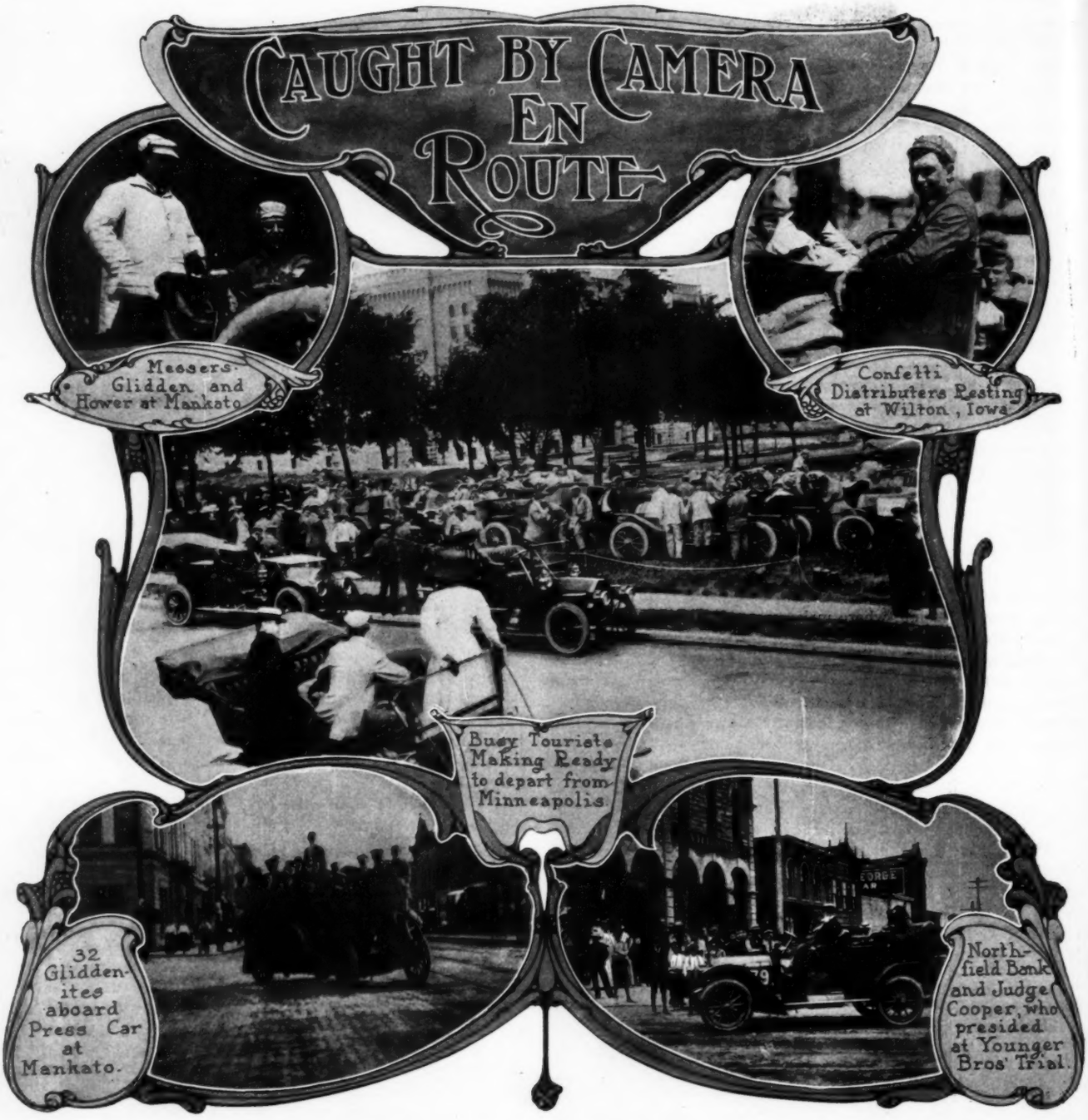
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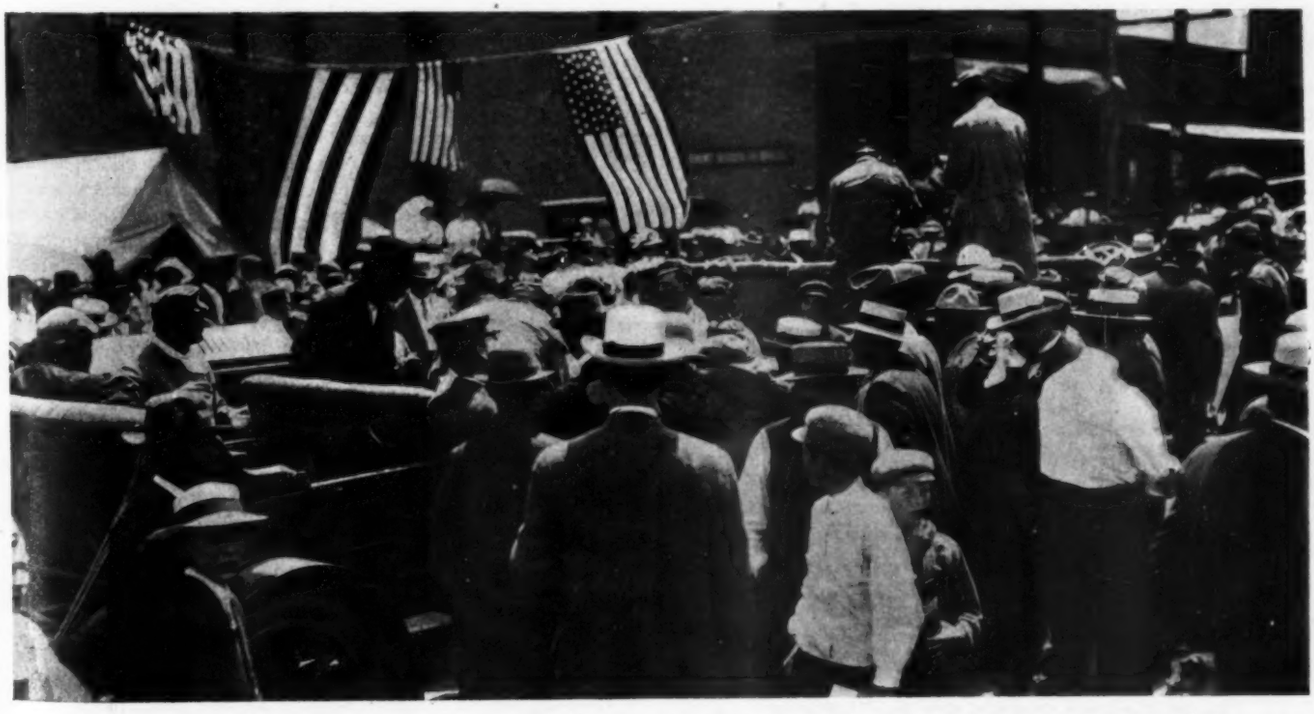

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W. C. Marmon Assumes the Role of Good Samaritan

score was the Jewel roadster, which had an encounter with a sand bank a few miles from the finish. A curve which was taken too sharply resulted in a dished wheel, a bent steering knuckle, and a broken spring clip. The total penalty was 8.4 points, which brought its record for the trip to 29.2 points.

NINTH DAY—COUNCIL BLUFFS TO KEARNEY

(200.2 Miles)

KEARNEY, NEB., July 22—"Alfalfaville" is the other name for this bustling little Nebraska city, which to-day gave a most hearty welcome to the "Gliddenites," for such is the designation of the participants in the big tour, as far as the inhabitants of the West are concerned. They may have heard of the A. A. A., read of Hower, and a select few may have knowledge of the fact that a Detroit trophy is involved in the three-sided contesting; but all know that one Charles J. Glidden has poked about the world most industriously with an automobile and has made the fact known to millions of people. And so the cavalcade, one and all, are spoken of as "Gliddenites," and such they will be to the end of the chapter.

According to the measurements of the rotund Lewis, it is just 200 miles and one-fifth from the Iowa town where we slept last night to this energetic burg, where a local club is in the process of formation and a nucleus of it extended courtesies that met with satisfied acceptance. The real prize of the festivities was the temporary installation in a local plumbing store of several shower baths which found quick patronage as soon as their location was learned. This committee deserves to have their names printed, and so they are herewith given in a thankful spirit: Joseph Wingard, chairman; Dr. G. H. Wade, Dr. A. A. Munn, G. R. Kibler, and Dr. John Cameron. At a smoker held in the city hall in the evening, Mayor Patterson presided, and Judge Oldham delivered a stirring address of welcome. Several "Gliddenites" added to the oratory, and all joined in the singing.

Starter Ferguson Checking Out No. 53 Premier

This car is driven by C. Waltman, and is contesting for the Detroit Trophy. H. O. Smith, head of the Premier Company, is seated alongside the driver.

While Omaha took an interest in this morning's passage of the tour through its streets, it can't be said that any vast hilarity greeted the occasion, for the spending of the night in Council Bluffs had in it a distinct disappointment to the residents of the city nearest to the banks of the Missouri. Hills added to the beauty of the scenery in the vicinity of Omaha, but after a score of miles the country flattened out and thus it remained with variations not worth mentioning all the way here. Fremont had a circus, and many horse-drawn vehicles were moving townward, and there resulted an inning of excitement for some of the farmers. Not before on the tour were so many frightened horses encountered.

Cattle grazing along the highways became frequent, and now and then one caught sight of what looked like a real cowboy. The alfalfa fields extended on all sides, and corn grew in plenty, thus indicating the two principal crops of the section traversed. The roads averaged up exceedingly well—in fact, so well that the nine-hour schedule proved utterly inadequate to inconvenience the sustained speed of the contestants, who arrived an hour and more in advance of checking-in time, and then after an impatient crawling behind the pacemaking car, which to-day had "Sammy" Stevens in the chairman's seat. The ruler of the contest board was suffering from a weather indisposition that caused him to stick to the Pullman train, but he instructed the acting pacemaker not to reach Kearney until 4 P. M.; and Stevens always obeys a ruling. While there were roads that must be set down as poor, the average to-day came as a pleasant surprise, and especially enjoyable was the concluding score of miles.

This cleanly young city of Kearney appreciates the motor-driven vehicle, as is attested by the fact that over 200 of its 9,000 odd inhabitants are the owners of cars. This would give an average of an automobile for every 45 people, which would appear to be a record, though there is a story floating about to the effect that another Nebraska town of less than a thousand population has over a hundred autoists.

But the cars are beginning to feel the effects of the long daily runs and the meager attention permitted without penalization. In consequence it is more than likely that the official announcements will contain demerit points more plentifully than has been the case up to the present time. Those to suffer in to-day's run included two that had previously been in the perfect class.

Only Two Penalties Were Inflicted—In spite of the fine roads where, as yesterday, the cars might have been given a free rein, the result to-day was not nearly as disastrous to perfect records as was the trip into the Bluffs. Only two penalties were inflicted, and there was one withdrawal. A penalty which had especial bearing on the contest was that given to the Chalmers-Detroit competing for the Detroit trophy, because now there remains but the American Simplex in that section with its desirable goose egg. The car driven by Cliff Waltman developed trouble with its commutator shaft connections, and tightening these gave it a penalty of 5.8 points for labor. An addition of .2 was made for work in tightening a motor bolt. The Detroit class is now ranked according to score as: American Simplex, Premier, and Chalmers-Detroit.

The other daily account was with the Jewel roadster, which had to change a spark plug, the points being 1.4, of which the .4 is for labor. The Chalmers-Detroit touring car withdrew, its previous penalties of 225.5 being thus increased to 1,000.

A single diverting occurrence happened during the day, and that was to the big six-cylinder Thomas touring car, which is participating in its second Glidden. There was a mudhole about halfway between the two cities of starting and stopping, and though it was short, it was mighty. A bed of quicksand was hidden by the black clay, and most of the cars were able to cross by rushing, but the Thomas sang to its hub and it took block and tackle to get it out. Webb Jay did the pulling with his Premier, using the Rapid truck as an anchor for the block.

TENTH DAY—KEARNEY TO JULESBURG

(206.2 Miles)

JULESBURG, COL., July 23—Nebraska's roads did not hold out on the second day for the entire route, and after getting out of the county of which Kearney is the seat, the highways fluctuated from one kind to another, finally becoming little more than a prairie trail. Acres of alfalfa stretched in all directions in and about Kearney, soon after leaving which was seen the post marking the halfway mark between Boston and San Francisco.

Both the Union Pacific railroad and the Platte River intermittently paralleled the route, and the wide stream was crossed near Gothenburg over a bridge a mile long. The river is shallow and mostly mud-bottomed, but it and its two forks are invaluable for irrigating purposes and rescue thousands of acres of land from disuse. As an indication of the country included in to-day's run, it is only necessary to refer to one of Dai Lewis' route-book notations, where, at 76.6 miles, he called attention to 14 mail boxes at a turn where it was impossible to see a house.

Kearney, Nebraska, Which is Half Way Between Boston and San Francisco, Greeting the Tourists

Of course, good-sized towns were discovered now and then, but in not a few instances they were often forty miles and more apart. North Platte had a single auto agency, but on a basis of population there is a substantial number of owners.

After about a hundred miles of the 206.2 had been covered, the going for the most part consisted of what looked nothing more than paths through pasture land, the center of the road being grass-sown. Rabbits frequently scurried across the front of the cars, quail popped into and out of view, and gophers were disturbed in their sunning. Occasionally patches of wild flowers enlivened the otherwise rather monotonous landscape, which, it must be confessed, bore a desolate appearance in the open country; and only fifteen towns were passed through in the two hundred miles.

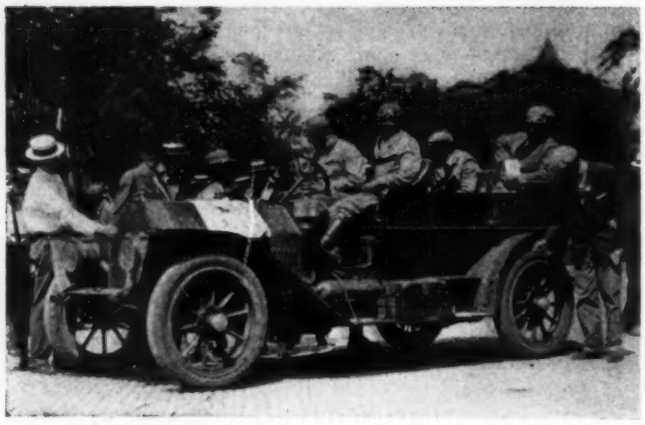
Near Sutherland several sandy and steep grades exercised the full horsepower of some of the cars. Here one of the confetti craft suffered a strain that caused a stop of a couple of hours, while in several other instances the aid of a good team was enlisted.

The story had been current the night before that Ogallala intended to do some "trapping" in case the speed law was not respected. Pilot Lewis investigated the tale and found out that it was fiction. Nevertheless, there was an incident at Ogallala which involved No. 7 Jewel, "Ollie" Bernhart driving, and, apparently, a new owner of a Ford. The latter became rattled and there was a collision. It naturally followed that the visitor must be to blame, and so a telephone to Brule, the next town, resulted in the holding of the tour driver until the arrival of the sheriff in an auto. Realizing that the placing of the blame would be more trouble than a settlement for alleged damage, Bernhart told the sheriff to telephone back that his company would foot the bill after the repairman had completed his estimate. This closed the affair for the time being.

Once to-day the round-the-world experience of George Schuster, who is driving the Thomas Sixty which carried the editorial complement of THE AUTOMOBILE and *Motor Age*, came into play. Near North Platte, an amateur owner had slid into the ditch in giving too much of the road to the contesting cars. The right kind of a knot and a pull soon made one man a happy individual again, to say nothing of those he was transporting. This is the third job of the kind in which the Thomas has participated since the beginning of the tour.

This night stop finds the tourists most comfortably located in their Pullman train in the outskirts of this little Colorado village of scarcely more than 1,200 souls, and as this story is finding form, a cooling breeze is filtering through the car window, assuring a good night's sleep in an altitude that has increased to-day about eight feet with every mile traveled. On arrival, the local entertainment committee presented each tourist with a brilliant red badge, welcoming them to Julesburg, "The Gateway to Colorado," and further conveying the information that "We have Julesburg reservoir, capacity of 1,200,000,000 gallons; 28,000 acres of irrigated land that produces 20 tons of sugar beets, 200 bushels of potatoes, and 5 tons of alfalfa. Unirrigated wheat and corn lands pay for themselves with one crop."

None of Perfect Scores Disturbed—In the matter of penalties, that sinister report to which the contestants look each day to see how they fare, there were few. Perhaps any derangements of the day will appear to-morrow, as is frequently the case. There were three cars which have raised their numerical standing, none of them being among the perfect contenders. They were the Jewel touring car, driven by O. P. Bernhart, which lost .1 of a point for work in fixing a bent fender, sustained in its Ogallala collision; another was the Glide which replaced a spring, and its 9.2 points were divided into 5 for labor and the remainder for the new spring, and the third penalty was given to the Moline driven by Gregory, which had to fix a fender, the work being rated at .8 and a new bolt at .2 points. There has been some question as to the reason for such heavy penalties for fender troubles, and the authorities have answered



A. Y. Bartholomew Driving No. 10 Glide, at Kearney

that there is perhaps no part of an automobile which has more effect upon its appearance than its mudguards. To make these sufficiently strong should be an aim of the manufacturer, say the rulemakers.

ELEVENTH DAY—JULESBURG TO DENVER

(204.8 Miles)

DENVER, COL., July 24—There was much variety in the double century of to-day, though for the most it related to the living things seen in the prairie section of the run. For the first hundred miles, the route paralleled the South Platte river, with the shallow stream visible little of the time. Its irrigating ditches constantly reminded one of the immense value of this unpicturesque river, for fields stretched in all directions which benefited from its water, sugar beets being, perhaps, the principal thing grown. At Sterling, the largest town passed through, a mammoth sugar-making factory told the resultant story of the reclamation of former arid acres. Cattle grazed by the hundred, and most of the so-called towns were nothing more than livestock runways alongside the railroad tracks, which stuck close to the highway.

At Fort Morgan, which has a prosperous appearance, the plunge was made away from the semblance of civilization, and the long, hot and dusty ride began across the prairie. For a while the effete Easterners enjoyed the wide expanse of country and cussed the intervals of rut-infested trails. Then Old Sol got in his work good and strong, and one lost interest in the scamperings of prairie dogs and jack rabbits, the alarmed soarings of the meadow larks and bobolinks, and the killing of an occasional snake. Some of the touring party saw many other things that had life, the list embracing antelopes, coyotes, owls, hawks, quail and minor birds in great quantity. The monotonous landscape had frequent colorings in patches of sunflowers, wild asters, and white primroses.

The "roads" were many and complex, and it required the exercise of no small skill on the part of Pilot Lewis to lay the route and for those who came behind, to follow it. Every few miles it was a necessity to open wire gates, which were always closed again, as there is a fine in the State of $500 for failing so to do.

Moreville—it needs considerable more to make it a place on the map—consisted of a shaft which the optimistic prospector has started for the bowels of the earth in search of coal. Even he was not in evidence to speed the passing guests, who at the moment were laboring over one of the roughest stretches navigated during the day.

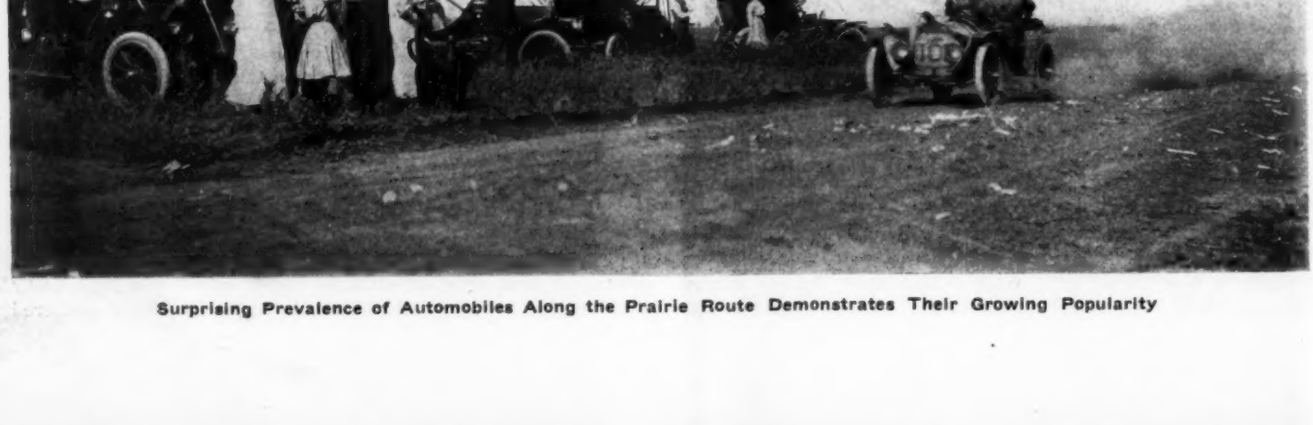
Soon after leaving Fort Morgan eyes had been strained to catch the first glimpse of the Rockies, and those with imagination saw the mountains many miles in advance of the less far-sighted. Clouds mercifully shifted about and frequently lessened the rays of the sun, which about midday supplied scorching heat. As a matter of fact, the Rockies did not show to advantage to-day, and few appreciated their bigness until nearing Bennett, previous to which the worst bit of the run had been encountered in the way of a shaky bridge across a small rivulet. The first cars weakened the structure, and THE AUTOMOBILE and *Motor Age* Thomas broke through. Schuster had tackled harder jobs before, and the big "60" was quickly rescued from its temporary predicament.

In several spots the carelessness of the farmers had permitted the irrigating ditches to overflow, and progress through these places had to be made cautiously. Once the E-M-F pilot car got stuck in one of its investigations, but Meinzinger extricated it, and the "spaghetti" then took the contesting cars around the miniature bog.

The desolateness of the scene at times caused one to wonder how one could find any value in life with such surroundings, the mud huts presenting a woebegone appearance with no treeless adornment and invariably the next similar "home" was so far away as to be out of sight. Of course it must be a matter of existence, not living.

Nearing Bennett, some twenty-five miles from Denver, the country renewed its appearance of being habitable, but even to the city limits, trees were few and far between, only the cactus and sage brush showing signs of growth. Of people there were none.

About fifteen miles from the mile-high city, at a ford in a stream, were the first big party of welcoming Denverites in their automobiles, though a couple of newspaper cars had said hello at Bennett. From that point into the finish the roads and, later, streets were lined. Bombs were fired to announce the arrival of the contestants, one being fired when they were ten miles from



Surprising Prevalence of Automobiles Along the Prairie Route Demonstrates Their Growing Popularity

Denver, two when they were five miles out, and another as each one entered the city limits. To see that the preparations were well carried out, the tourists were met by the official committee, consisting of: Dr. Ralph L. Taylor, chairman; Joseph McDuffie, George Wahlgreen, Tom Botterill, T. J. O'Donnell, Judge Grant L. Hudson, E. E. Sommers, and Dr. E. P. Geggenbach. The entry was over the Mountview boulevard, and through City Park to East Eighteenth avenue.

Only Two Cars Penalized—In view of the hardness of the route, considered the most difficult of the trip to date, it was expected that the penalties would be numerous and heavy. There was much surprise, therefore, when it was learned that only two cars had received marks against their scores. One of these was the perfect-score six-cylinder Thomas, driven by Gus Buse, Jr. Out on the deserted plains it was necessary to make a repair upon the gasoline feed line, where it had worn through. One point was the result. The other car was the Glide, which broke a spring, and did not arrive until evening. All manner of dire stories had arisen as to its delay, from broken bridges to "lady" bandits, and the latter yarn found publication in a Denver daily.

The trouble at the bridge might have delayed many of the contestants had it not been understood that time might be taken out if the delay was so great as to make a car tardy. At the broken bridge each contestant was instructed to wait for the next car, and the observer took out time.

TWELFTH DAY—DENVER TO HUGO, COL.

(173.5 Miles)

HUGO, COL., July 27—En route to this little village of the prairie, 173 miles from hospitable Denver, a two-hour control was put into effect at Colorado Springs, so that the contesting tourists could visit the Garden of the Gods and other points of interest in the vicinity. The ride to the springs from Denver is credited one of the most beautiful, scenically, in the country, the route paralleling the rocks with a good road. Pike's Peak to-day was visible over 500 miles. Soon after leaving the springs, the plunge began across the prairie, which supplied all kinds of going, some excellent, and much proving more annoying than difficult. At this time nothing living was visible, not even a prairie dog. The elevation of this new and possibly booming town, is some four thousand nine feet above sea level, and it is cool and comfortable in the Pullman sleeping cars, which answer for hotel accommodations.

For amusement to-night, the party patronized a church ice-cream festival and danced. Everybody in the village attended, for the population does not much exceed 500. The run across the plains led to the loss of two previously perfect scores, one in the Glidden class and the other the only clean-record machine of the Detroit class. The former is the White Steamer driven by H. N. Searles, in which sand found its way into the lubricator pipe and necessitated a cleaning. The labor spent cost 2.2 points, and lateness from the same source, 16 points, a total of 18.2. This leaves six cars still with perfect scores, out of the thirteen starters.

The American Simplex was the most unfortunate car of the day, however, for it dropped into a deep gulley and had its steering gear and radiator seriously injured. The gulley was hard to see and several machines narrowly escaped dropping in, instead of turning with the ditch to a more accessible place. The car driven by J. A. Wood was travelling at a speed of about thirty miles an hour when the danger was seen, and quick application of brakes reduced to speed to fifteen. Block and tackle were necessary in order to get out, and then the steering gear had to be straightened, and it was found that the bottom of the radiator was stove in and leaking badly. The penalty for labor and grease used was 1.4 points, and though the car was sixty-one minutes behind its schedule seventy miles out, it was able to check in ten minutes ahead of time. The little Brush runabout, now a non-contestant, driven by Trinkle, turned turtle before reaching Colorado Springs. It was righted by some of the con-

Freight Crew Greeting White Steamer in Nebraska

testants and will rejoin the party when it has had its steering apparatus repaired. Near the same place the Hupmobile, another non-contestant, broke a connecting rod, and it will have to hurry to catch up with the procession.

The Glide touring car has been experiencing trouble with light springs, and its penalty for Saturday, the run to Denver, was to-day announced at 119.3 points, of which 113 were for lateness

No. 8 Pierce Under Sycamores at Silver Creek, Neb.

and the other 6.3 points for labor on the fan belt and front springs. The standing of this car for to-day has not been given out, but will be announced to-morrow.

The Jewel touring car driven by O. P. Bernhart, has had its score re-arranged, beating it down from 16.1 to 8.9 points. There had been a miscalculation in the penalty inflicted on the run from Fort Dodge into Council Bluffs.

Mason Car Taking on Supplies at Council Bluffs

THE TABULAR STORY OF THE BIG TOUR AS IT PROGRESSES

GLIDDEN TROPHY

No.	Car	H.P.	Cyl.	Bore	Stroke	Driver	1st Day	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th
1	Premier	32.4	4	4½	5¼	Webb Jay	0	0	0	0	0	0	0	0	0	0	0	0
2	Premier	32.4	4	4½	5¼	H. Hammond	0	0	0	0	0	0	0	0	0	0	0	0
3	Chalmers-Detroit	40	4	5	4¾	William Bolger	1	0.4	0	0	0	0	204	19.1	Withdrawn			
4	Marmon	32.4	4	4½	4½	F. E. Wing	0	0	0	0	0	0	0	6.8	0	0	0	0
5	Marmon	32.4	4	4½	4½	H. C. Marmon	0	0	0	0	0	0	0	0	0	0	0	0
6	Maxwell	28.9	4	4¼	4¼	E. G. Gager	0	0	0	0	0	0	0	0	0	0	0	0
7	Jewel	36.1	4	4¾	5	O. P. Bernhardt	0	0	0	0	0	0	0	16	0	0.1	0	0
8	Pierce-Arrow	48.6	6	4½	4¾	F. S. Dey	0	0	0	0	0	0	0	0	0	0	0	0
9	Pierce-Arrow	48.6	6	4½	4¾	W. P. Winchester	0	0	0	0	0	0	0	0	0	0	0	0
10	Glide	36.1	4	4¾	5	A. Y. Bartholomew	0	0	0	0	0	0	0	16	0	9.2	119.3	*
11	Thomas	72.6	6	5½	5½	G. B. Buse	0	0	0	0	0	0	0	0	0	0	1.0	0
12	Midland	32.4	4	4½	5¼	E. O. Hayes	0	0	0	3.7	0	0	0.6	0	0	0	0	0
14	White	40	...	...	...	H. N. Searles	0	0	0	0	0	0	0	0	0	0	0	18.2

DETROIT TROPHY

51	American Simplex	50	4	5	5	W. A. Wood	0	0	0	0	0	0	0	0	0	0	0	1.4
52	Chalmers-Detroit	40	4	5	4¾	Jean Bemb	0	0	0	0	0	0	0	0	6	0	0	0
53	Premier	32.4	4	4½	5¼	Cliff Waltman	0	0	0	0	0	0	0	0.8	0	0	0	0

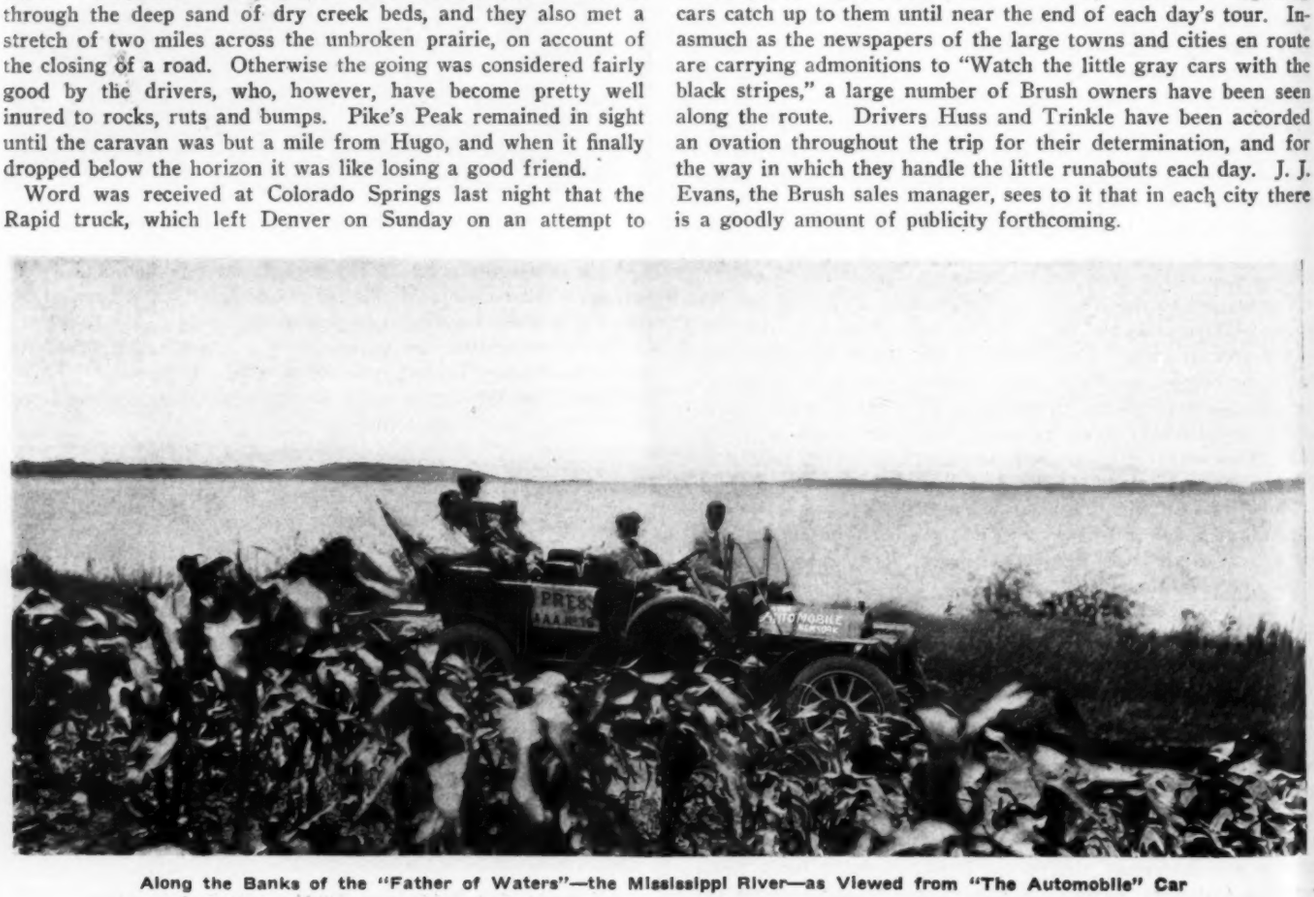
HOWER TROPHY

100	Moline	32.4	4	4½	5	C. H. Van DerVoort	0	0	0	0	0	0	0	3.1	0	1	0	0
101	Moline	32.4	4	4½	5	J. A. Wicke	0	0	0	0	0	0	0	0	0	0	0	0
102	Moline	32.4	4	4½	5	W. S. Gregory	0	0	0	0	0	0	0	16.1	0	0	0	0
103	Brush	7	1	4	4½	F. A. Trinkle	0	0.4	0	3.0	2.2	Withdrawn						
104	Brush	7	1	4	4½	D. B. Huss	40.8	149.3	423.6	343.9	294	Withdrawn						
105	Chalmers-Detroit	40	4	5	4¾	John Machesky	0	0	0	0	0	0	0	0	0	0	0	0
106	Hupmobile	16.9	4	3¼	3½	E. A. Nelson	0	0	0	358	1000	Withdrawn						
107	Maxwell	28.9	4	4¼	4¼	C. E. Goldthwaite	0	0	0	2.6	0	0	1.6	0	0	0	0	0
108	Pierce-Arrow	38.4	6	4	4¾	J. S. Williams	0	0	0	0	0	0	0	0	0	0	0	0
109	Pierce-Arrow	38.4	6	4	4¾	Chas. Schofield	0	0	0	0	0	0	0	0	0	0	0	0
110	McIntyre	18	2	4¾	4¾	Frank Goodwin	29	423.7	1000	Withdrawn								
111	Jewel	36.1	4	4¾	5	John Shimp	0	0	0	9	6	5.6	0	8.4	1.4	0	0	0
112	Mason	20	2	5	5	R. Snyder	0	0	0	2.4	0	1.9	0	0	0	0	0	0
114	Lexington	36.1	4	4¾	5	J. C. Moore	0	0	0	0	0	0	0	0	0	0	0	0

John Williams' Pierce Arrow went into the same hole that brought the American Simplex to grief, but as he applied his brakes and swung about when he reached it the car rested in the sand bank on its front axle and afterwards pulled itself off. This washout was at the bottom of a declivity, so that the drivers could not see it until they were but a few feet distant. There were several other washouts on the way, but none of them were as deep or as hard to locate as this one, and nobody had any trouble with them. In two places the cars were forced to travel through the deep sand of dry creek beds, and they also met a stretch of two miles across the unbroken prairie, on account of the closing of a road. Otherwise the going was considered fairly good by the drivers, who, however, have become pretty well inured to rocks, ruts and bumps. Pike's Peak remained in sight until the caravan was but a mile from Hugo, and when it finally dropped below the horizon it was like losing a good friend.

Word was received at Colorado Springs last night that the Rapid truck, which left Denver on Sunday on an attempt to climb Pike's Peak, got stuck when two miles from the top and had to turn back. It is expected to arrive here during the night and to continue with the tour.

Little Brush Runabouts Plugging Along—The two smallest members of the tour are the little Brush runabouts, which found the contesting pace too severe for a single-cylinder machine. Since their withdrawal they have been running each day as non-contestants and making good. The drivers leave each morning about 5 o'clock, and it is rarely that the completing cars catch up to them until near the end of each day's tour. Inasmuch as the newspapers of the large towns and cities en route are carrying admonitions to "Watch the little gray cars with the black stripes," a large number of Brush owners have been seen along the route. Drivers Huss and Trinkle have been accorded an ovation throughout the trip for their determination, and for the way in which they handle the little runabouts each day. J. J. Evans, the Brush sales manager, sees to it that in each city there is a goodly amount of publicity forthcoming.



Along the Banks of the "Father of Waters"—the Mississippi River—as Viewed from "The Automobile" Car

Walter Winchester in No. 9 Pierce-Arrow F. E. Wing Piloting No. 4 Marmon G. G. Buse Driving No. 11 Thomas "Six"

SOME ODDS AND ENDS ABOUT THE BIG TOUR

Newspaper Men Who Have Stuck—Journalists are not always expected to undergo the hardships of real autoing, if the statements of the rocking-chair correspondents are to be believed. The complement which left Detroit is not unbroken, for there have been a number of changes, both of addition and withdrawal. Among those who have not taken the entire trip are: "Jim" Sullivan of the Boston *Globe;* E. G. Westlake, Chicago *Evening Post;* J. S. Patterson, Chicago *Examiner;* Dick Tucker, Minneapolis *Tribune.* Of course THE AUTOMOBILE and *Motor Age* staffs with their own special car have used it every day. Among the daily paper representatives who are on the job are: J. C. Kerrison, Boston *American;* H. G. Reynolds, Boston *Post;* "Jack" McNamara, Boston *Herald;* "Jack" Wade, Boston *Journal;* Guy Shields, Chicago *Daily News;* Pete Estey, Chicago *Examiner;* Walter Birmingham, Chicago *Inter-Ocean;* "Jimmie" Fulton, Chicago *Record-Herald;* W. S. Gilbert, Cleveland *Plain Dealer;* Frank Lowry, Indianapolis *Star;* J. T. Sullivan, Buffalo *News;* Chas. G. Steinhauer, Cleveland *Leader;* Harry Smith, New York *Times.* Joseph Alphabet Ryan is one of the chair-car tourists who appears every now and then.

Tire Men Well in Evidence—There are fewer makes of tires in the contest this year than formerly, but the ones represented have better conveniences than ever before, and factory men are along to attend to the wants of the contestants. Diamond tires are dealt out by L. K. Rittenhouse, assisted by George Davidson; Goodrich interests are in charge of W. O. Rutherford, aided by C. E. Bonnett; Morgan & Wright tires are looked after by Harry Clinton, who also keeps a supply of yellow kid dusters for use on boys in the cities; and Goodyear air bottles with the Rapid truck, are dispensed by W. Simons, T. P. Meyer, and James Carey. Ajax tires are used by the Brushes and the Maxwells, and inasmuch as each of these automobile concerns has factory officials en route, they attend to the pneumatic wants of their machines. There is another tire man along in the capacity of mechanic on Bemb's Chalmers-Detroit car. This is John V. Mowe, manager of the Buffalo branch of the Firestone Company, who is taking the tour as a cure for weight. His friends think that the cure is not working as it was intended.

White Steamer Pictures in Many Papers—Kerosene as a fuel for automobiles has proven an interesting point to those along the way who are always looking for something new and good. The White Steamer, driven by the former secret service man, H. N. Searles, is the one using kerosene, and it obtains its supplies at any country store. The fact that the car is in the contest, with a perfect score, is kept well known by R. H. Johnston, the wideawake advertising manager of the White Company. Mr. Johnston sometimes rides with the White and sometimes a la Pullman, but at all times he has his photographs and cuts ready for the papers in the cities visited.

Crops Have Been Better all through the West this year than for twelve years past, and the fall will find the farmers well supplied with money. "Their interest has been aroused in motoring by the present tour," said H. O. Smith, "and they will look at automobiles now. I am told that out in this section the people have talked of little else than the tour for the past several months, and therefore the interest in the cavalcade and the warm welcome." Others who participated in the tour were well pleased, as the publicity obtained along the route of the tour was not purchasable at any price.

Train Brigade Each Day—Predictions were made that as soon as the comfortable train of Pullmans was installed there would be a following by rail. This was correct, but there are few who do travel in the cleaner manner. Some of the tour officials, Hotel Manager Glen Fargo, and W. F. Smith, of the Maxwell-Briscoe Company, are the regulars. Then there are generally half a dozen tourists who take a rest. It is claimed that more of the tour has been seen this way than by going in the automobiles, for the railroad has been paralleled for many miles.

H. O. Smith, of the Premier, on rejoining the party, was more than pleased with the train arrangements. "I have had a good night's sleep," said he, "and I am greatly surprised to know that from the outset there has been no roystering on the car. Things seem to be quieter even than at a hotel where numbers of men are put together in the same room. On the train everyone seems to be on his good behavior, and I believe that the special train solved the problem nicely and that it will make this tour a great success."

C. H. Van Der Voort, of the Moline, says his company will have three entries for the Glidden tour of next year, regardless of the route decided upon. The three cars of this Glidden will be in the Munsey tour from Washington to Boston and return in September, and perhaps in the Flag-to-Flag tour in October. Mr. Van Der Voort is also preparing two cars for the Algon-

quin Hill climb. "I believe in contests," said he, while at dinner on the special train, "and shall be very active in the field from this time on."

Soothing Lotions for Sunburn in Demand—Throughout the trip to the plain country the tourists who did not burn under the hot sun of Iowa and Nebraska, considerably joked with those who did. When Denver was reached, however, all joking was laid aside and there was a large purchase of cold cream, cocoa butter, and other preparations alleged to remove the sting of alkali bronzing. Everyone in the cars, except those wearing actual sun-bonnets, felt the touch of the sun and dust.

Hower Has Daily Guests—The pacemaking Premier used by Chairman Hower and Trophy-donor Glidden is each day occupied, also, by some guest of the chairman. Sometimes he has newspaper men, once a tire man, and all the time Sam B. Stevens, of Rome, N. Y., a member of the contest board. "Jim" Sullivan, of the Boston *Globe*, and "Jack" Kerrison, of the Boston *American*, were elected on alternate days, and W. O. Rutherford, of the Goodrich Company, on another one.

Hupmobile in Non-Contesting Division—The "little Hup," as it is generally known, is now with the tour as a non-contestant, and is traveling each day with the main body of the cars or directly behind them. Since leaving Minneapolis it has been going along steadily and without any difficulty, crossing the sandy stretches, climbing the steep hills, and showing speed on the fine stretches. At present the Hupmobile is one of the three non-contestants, all from the smallest car class.

"Please Send Me Postal Cards!" was written on a lot of notes thrown into cars along the way. Away back in the Pittsburg tour of 1903 the high school girls of Chagrin Falls handed apples to the tourists from the end of fish lines, dangled from poles over the road, and one of the tourists got an address to which he wrote, and the result was matrimony. Perhaps some of the tourists of to-day may also be fortunate.

Vermont Autoists Represented by President Brown—From the Green Mountain State comes the president of its automobile association, W. W. Brown, who declares that he is just taking a joy ride, and is riding as a passenger in No. 4 Marmon. The amount of good roads in the West has been a surprise to him, as to most of the tourists, and he says that he will so report when he returns to New England.

Never Heard of Father George—Up in Minnesota there is a town called Morristown, and one of the tourists said to a native there: "Is this where George Washington had his headquarters during the Revolution?" The answer finally emanated—"Well! I think you must mean Morristown, Iowa, for I don't recollect having heard of anybody by that name living here."

Nels Hamilton, of Central City, Neb., was so enthusiastic over the tour that he walked many miles from his ranch to erect two posts out of corn stalks and stretch across the road a welcoming banner and a lot of American flags. The demonstration was appreciated, for there was not a house in sight for miles and miles out on that broad prairie.

Dwight Huss First Gained Fame by driving a little 10-horsepower single cylinder Oldsmobile tonneau car to St. Louis in 1904 at an average of 20 1-2 miles an hour, and now Huss, contrary to the usual rule, has taken up a car of even smaller horsepower, the 7-horsepower Brush. "I drive this because it is worth my while," said Huss with a smile.

Charles J. Glidden Has Not Abandoned his around the world journey, but will renew it very shortly and complete it in 1911. Mr. Glidden will then have driven fifty thousand miles, and his book will contain two hundred thousand words and illustrations galore.

"I Sort of Like This Party," said a veteran journalist who has been on every big tour. "Why, there are no hard feelings that I know of in the 'bunch,' and everything is so pleasant that it reminds me of other tours—for the reason that it is different."

Church Steps Are Crowded frequently with people, but there is a noticeable lack of smiles when the tourists almost invariably shout: "Waiting at the Church?" It soon became evident that this worn-out song has not yet invaded the West.

All Along the Route to Denver local people seemed to like to supply what is known as a "scare," and every day's run was faster, as every driver beat it trying to reach the bad roads early, then only to find no really bad roads.

MITCHELLITES IN CALIFORNIA CELEBRATE

SAN JOSE, CAL., July 26—Mitchell owners from all over the State gathered in San Jose for the third annual jubilee of their "family." The day was perfect, and the roads in almost every instance were reported in the best of condition. The principal event of the jubilee was the hill climb over Alum Rock Hill. The course was a mile long, a steady grade of 8 per cent., with an almost perfect surface. Miss Marion Walcott won the ladies' class, in the fast time of 1.19 4-5. The fastest time, 1.06, was made by L. P. Brassey, in the old model class. W. M. Lewis and Vernon Rogers, of the Mitchell Company, were present and handled the details.

POPE RECEIVERS FINALLY DISCHARGED

NEWARK, N. J., July 27—Vice-Chancellor Howell to-day officially discharged the receivers of the Pope Mfg. Co., and ordered them to turn over the balance of cash on hand, amounting to $7,598.87, to the officials of the new company. This ends the receivership and completes the reorganization of the Pope Mfg. Co.

Building an Aeroplane in Newburgh, N. Y.—That stonecutters may fly is the belief of David Lowers, a stonecutter, and his son, David M. Lowers, who are building an aeroplane in the city on the Hudson, and which has given evidence of its ability to navigate the air. The machine is now being completed and will be equipped with a 30-horsepower engine. New ideas in steering and in the distribution of weight are features.

CURTISS FLIER STILL IN REPAIR SHOP

MINEOLA, L. I., July 26—Glenn Curtiss' aeroplane, which flew so successfully last week, only to be wrecked by a novice, is still laid up. It was expected that Curtiss might have it ready for further tests to-day, but the damage was found greater than at first supposed. When the canvas was removed from the skeleton framework it was found that twenty-nine of the forty ribs had been broken, and there was also considerable injury to the running gear. However, it is hoped that it will be in shape Wednesday. Mr. Curtiss will try to better his present record of 52 minutes 30 seconds before leaving for Europe to contest in the international races at Rheims, France.

FRENCH AEROPLANES WRECKED BY STORM

VICHY, FRANCE, July 25—A violent storm wrecked the aeroplane sheds here to-day and scattered a great crowd which was present at the grounds. Paul Tissandier's Wright aeroplane was demolished, and M. Paulham's Wright and the machines of MM. Zipfel and De la Rue were much damaged.

MORE PRIZES OFFERED FOR AVIATORS

LONDON, July 25—Baron de Forest has offered a prize of £4,000 for the first Englishman to cross the Channel on an English-built aeroplane, provided he beats the existing record in time. William Waldorf Astor has contributed £1,000 to the national airship fund held by the *Morning Post*.

Bleriot Starting Across the Channel from Sangatte Cliff on His Epoch-Making Flight

DOVER, ENGLAND, July 25—Louis Bleriot this morning flew across the English Channel from Calais to this city in his monoplane. The distance is about twenty-four miles, and he was in the air thirty-seven minutes. The flight was accomplished without incident, and apparently with the greatest ease.

Bleriot left the Terminus hotel, at Calais, at three o'clock this morning and drove out in an automobile to Baraques, where his aeroplane was housed. As the weather seemed favorable, he ordered out the torpedo boat which the French government had assigned to him, and began preparations for the flight. The aeroplane, which is Bleriot's eleventh, was found in good condition; the motor ran smoothly and powerfully. At 4 o'clock he mounted his seat and made a short trial flight of a quarter of an hour, landing near the edge of the cliffs. There he waited for the sun to rise. The weather was foggy, so that the coast of England could not be seen, and there was a light southwest breeze.

At 4:30 Bleriot, clad in a khaki suit with a close-fitting cap, again climbed into the car. He had injured his foot several days before, and laid aside a pair of crutches as he took his seat. Anzani, the designer of the motor, himself cranked it, and at 4:35 the aeroplane shot into the air. Bleriot rose rapidly to clear the telegraph wires strung along the edge of the cliff, and sailed out over the water at an elevation of about 250 feet.

The torpedo boat put on full steam and headed for Dover, but Bleriot, making over forty miles an hour, quickly passed it. In his own story, printed in the London *Daily Mail*, he says that after flying for about ten minutes the chalk cliffs on both sides and the torpedo boat were completely lost in the fog, and as he had no compass he was compelled to let the aeroplane take its own course. As a consequence the wind took him out of his way, and when the English coast became visible he made out Dover castle far to the west. He had to turn the machine almost at right angles. Now, too, the air currents set up by the cliffs began to be troublesome. This was by far the most difficult part of the trip.

However, he reached safely a green meadow two miles east of Dover, which had been marked with a big French flag as a suitable landing place. A sudden wind whirled the machine around, and Bleriot shut off the motor and descended sharply from a height of sixty-five feet. He struck the ground with a severe bump, breaking the propellor, but without harm to himself. Two Frenchmen who had been expecting his arrival were the first to welcome him and to help him from the machine. His injured foot gave rise to the report that he had been hurt in landing, but this was incorrect. An automobile quickly took him to Dover, where the torpedo boat, with his wife on board, had just hove in sight. Mme. Bleriot came ashore in a small boat, and the couple were heartily cheered.

A guard of police was necessary to protect the aeroplane from souvenir hunters, who would quickly have wrecked it and carried away the last fragment. As it was, the wings were covered with autographs. Soon the enterprising city officials erected a tent over it, and charged sixpence admission.

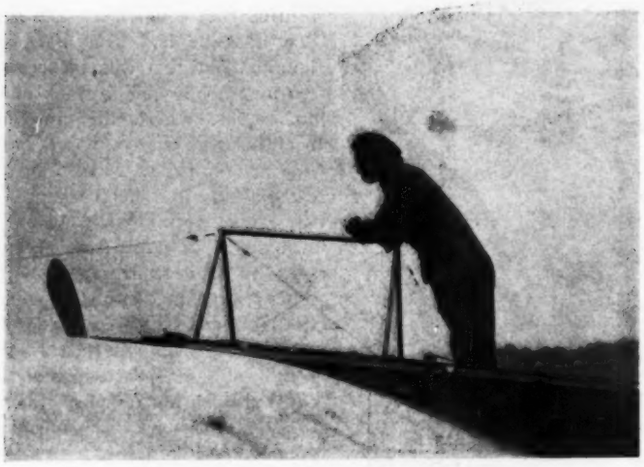
LONDON, July 26—Bleriot and his aeroplane reached here this morning, the aeroplane to go on exhibition and the aviator to receive the £1000 prize of the *Daily Mail* which he won by his flight. The prize was awarded at a luncheon at the Savoy, and Mr. Haldane, the Secretary for War, was the principal speaker. The Aero Club has decided to present M. Bleriot with a gold medal similar to that which it conferred on the Wrights. M. Bleriot received his honors modestly, and managed to stammer "Thank you" in English.

Bleriot and His Epoch-Making Aeroplane

Bleriot is a successful inventor, and has long been interested in the problems of aviation. Unlike Latham, his rival, he is of pure French descent, and is 37 years old. He is a graduate of the famous Central School of Engineering at Paris. In 1896 he invented one of the first practicable acetylene lamps, and Bleriot automobile headlights are now used the world over. He made his first full-sized model of an aeroplane in 1900, and for a long time it was kept in his factory at Paris. Since then he has spent much money and time on the subject.

Last year he attained his first noteworthy success in a cross-country flight from Tours to Athenay, the first of its kind ever made in an aeroplane, and a monument was erected in his honor. Quite recently he made another flight from Etampes to Chevilly, a distance of twenty-five miles. His record for time is 50 minutes 8 seconds, made at Juvisy July 4. When Latham failed in his recent attempt, Bleriot hastened to Calais to try the passage himself. He has always been noted for his recklessness, and it has been predicted many times that he would be killed; but although he has been in innumerable smash-ups and has wrecked half a dozen aeroplanes he has always managed to escape without serious injury. Only last week one of his machines caught fire and Bleriot's foot was painfully burned. It was this accident that caused him to be walking on crutches before he started.

The monoplane which performed so well is one of the smallest and lightest ever built. It is only about twenty feet across the wings, and weighs 400 pounds. The motor, which is a three-cylinder air-cooled design of 25 horsepower, made by Anzani, rests between the wings and carried the two-bladed propellor on the front end of its shaft. The propellor is thus the foremost part of the machine. A tail extends some distance to the rear, and carries horizontal and vertical rudders. The operator sits in a skiff-like body between the wings, and to the rear of the motor. In previous flights M. Bleriot was troubled by the hot oil from the motor which blew back into his face, but this defect has doubtless been remedied. Control is by a single lever, which moves backward and forward to turn the machine up or down, and sidewise for steering to the right or left. The wings can be



Bleriot Awaiting the Signal for the Start

folded up, if desired, and in this condition the machine can be towed along behind an automobile.

The aeroplane is popularly described as resembling a huge dragon fly. Its wings are covered with an opaque material like vellum, making them seem very light and fragile.

Experts here regard Bleriot's performance as a vindication of the monoplane type. The machine has much less surface in proportion to weight than is usual, which makes it more stable.

LATHAM AGAIN FALLS IN CHANNEL

DOVER, ENGLAND, July 27—Hubert Latham, whose gallant attempt to cross the Channel last week prepared the way for Bleriot's successful trip, was caught napping, literally as well as figuratively, and lost by a few minutes his chance to tie with Bleriot for the *Daily Mail* prize. The two aviators had agreed that if both made the flight the same day they would divide the prize, regardless of which was actually the first to touch English soil. When on the morning of the 25th he found that Bleriot had actually started, he made a desperate attempt to follow, but the rising wind compelled him to descend. He swallowed his disappointment as best he could, and when the news of Bleriot's landing was flashed across to Calais he sent back the message: "Hearty congratulations. I hope to follow you soon."

True to his word, Latham made a second trial this evening, and moreover announced his intention of continuing straight on to London, if he succeeded in crossing the Channel. A great crowd gathered on the cliffs and roofs of Dover when the wireless announced that he had left Calais. Presently those with glasses made out a black spot in the sky, approaching rapidly. It was Latham, and he seemed headed straight for the landing place that had been prepared for him. The ships in the harbor set up a terrific din with their whistles. But suddenly the machine faltered, recovered for a moment, then settled swiftly down on the water, still two miles from its goal. The aviator was picked up, wet through and with a bad cut on his head. The cause of the failure was the motor, which stopped for no apparent reason.

WRIGHT SUCCEEDS WITH PASSENGER IN OFFICIAL TRIAL

WASHINGTON, D. C., July 27—Orville Wright fulfilled the first part of the government requirements to-day by a flight of 1 hour 12 minutes and 40 seconds, carrying a passenger. Incidentally he broke his brother's best record for a flight with passenger, made in France last year. President Taft witnessed the trial.

During the early afternoon there was a high wind, and flight seemed impossible, but it suddenly dropped away within half an hour, and the sun came out and shone brightly. The aeroplane was at once brought out and placed on its rail. Lieut. Lahm, the passenger, took his seat, and a moment later Orville climbed in beside him. He gave the signal, and the car was released and shot away. It seemed to rise as easily as usual, despite the extra weight, and made a beautiful turn at the end of the field. As it passed the northern end of the field the crowd cheered, and President Taft looked on with interest.

The machine sailed on smoothly, a little lower than usual, but making its circuits with the regularity of clock-work. Only once the machine tilted badly in a sudden gust of air, but it easily righted itself and kept on. The performance grew almost monotonous. Lieut Lahm sat quietly in his seat, keenly watching the operation; apparently he spoke to the aviator at times. The colors of the brilliant sunset faded, and the half moon grew brighter. When the hour required by the government specifications had elapsed, the crowd burst into cheers, and the automobiles honked in unison. Orville waved his hand, but kept on. Ten minutes more, and they cheered again as Wilbur Wright's record was broken. On the next round Wilbur stepped out and waved his hat as the signal to come down. It was now quite dark and further flight would have been dangerous.

Orville was talking to Lieut. Lahm as they came down, and the aeroplane touched the ground before he had expected, bouncing up quite sharply and settling again fifty yards further on. No damage was done.

After the brothers had a talk with President Taft, who congratulated them and said that it was an honor to have been present. He laughingly hoped that Lieut. Lahm had behaved well and had not talked to the motorman.

The brothers were much pleased with the flight, and Wilbur estimated that the speed was about forty miles an hour. To-morrow, if conditions are favorable, they will attempt the straight-away speed trial of five miles and return. The flight will be made in the direction of Alexandria, to the south of Fort Myer, and a small balloon will mark the turning point. Lieut. Foulois will be the passenger. To meet the requirements, the aeroplane must make a speed of thirty-six miles an hour, and a bonus will be paid over the contract price if this is exceeded.

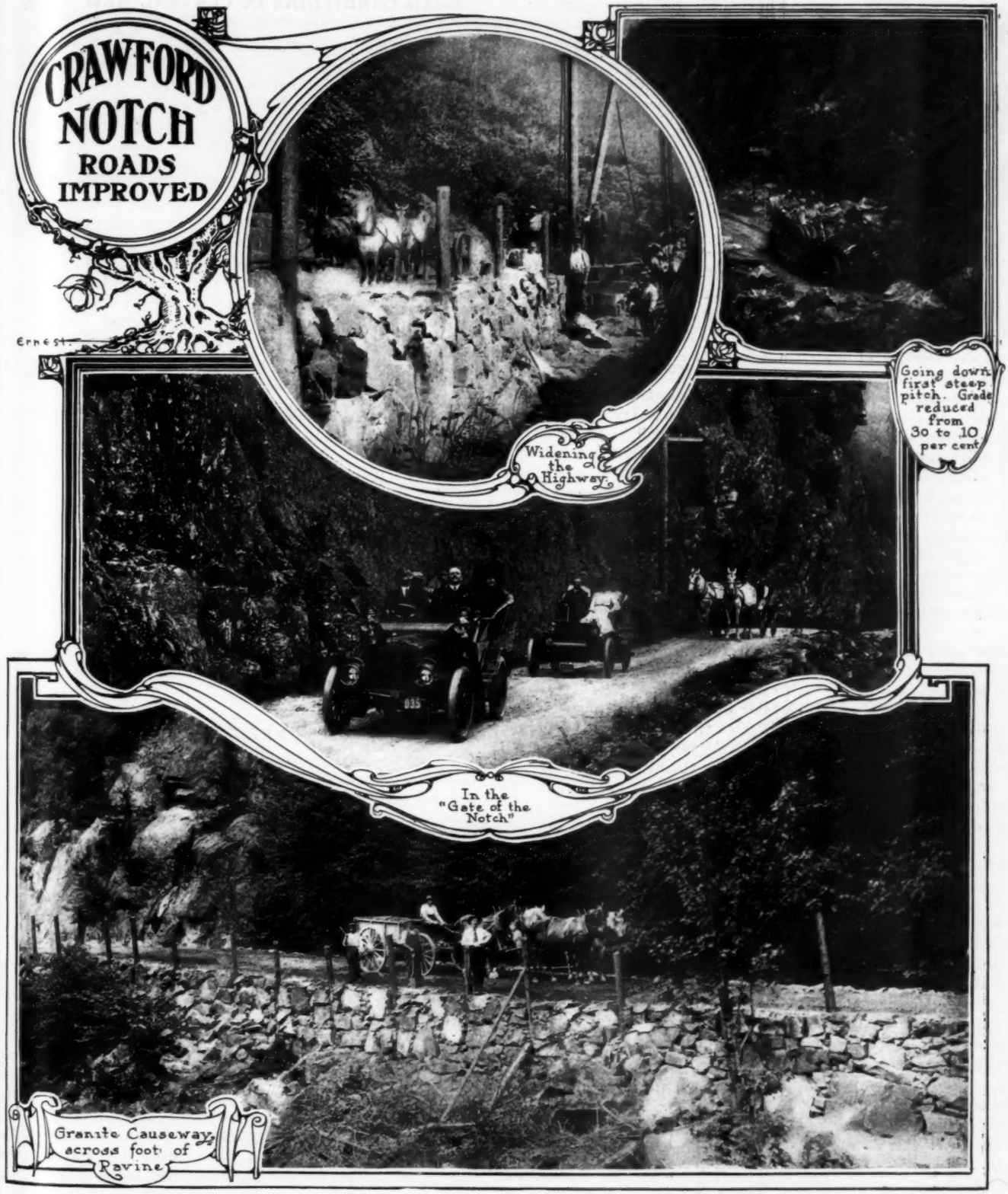
Wright Aeroplane Again Breaks Skid

WASHINGTON, D. C., July 24—The Wright brothers had intended to take up one of the Signal Corps officers as a passenger to-day, but a vagrant gust of wind as Orville was alighting from a trial flight put an abrupt end to their plans. After a flight of twenty minutes the aeroplane was settling down when a sudden breeze caught it and brought it to earth with a crash, snapping the left skid. Repairs will be completed by Monday.

Last Wednesday a break in the machinery compelled a descent when the machine was speeding along at a forty-five-mile gait. It was on its third lap when a small object was seen to fall from it, and instantly the motor stopped. Orville glided easily down. The small object was found in the grass and turned out to be the magneto pinion. It was put back on its shaft and brazed in place, and Orville went up again. The next flight lasted only eleven minutes, but Wilbur announced that a speed of 44 miles an hour had been attained.

Orville Wright Flies in Taft's Presence

WASHINGTON, D. C., July 26—President Taft, Vice-President Sherman and a crowd of ten thousand saw Orville Wright fly this evening in the teeth of a eighteen-mile breeze. Aided by the wind, the aeroplane succeeded in rising from its starting rail without the use of the falling weight. It made three and a half circuits of the field; no time was announced. The President had a short talk with the brothers and examined the machine carefully. The flight was made for his especial benefit, although it had been first decided to postpone it on account of the wind. It was the first time the President had seen the machine in flight.


CRAWFORD NOTCH ROADS IMPROVED
Ernest
Widening the Highway
Going down first steep pitch. Grade reduced from 30 to 10 per cent
In the "Gate of the Notch"
Granite Causeway across foot of Ravine

THE central pass of the White Mountains in New Hampshire, known as Crawford Notch, has always been noted for its scenic attractions. With the advent of automobile touring its fame became more widely disseminated than ever, with consequent benefit to those who live in the State, and those particularly who live near the fascinating routes through the high hills. The State has appreciated this fact, and to make automobiling easier, without lessening the grandeur of the surroundings, has made changes of a considerable nature in the roadways of that section within the past few months. Under the supervision of the New Hampshire Highway Commission causeways have been built, steep grades have been cut down, and roads have been widened wherever possible.

During the month of June the work was focussed in Crawford Notch, and notably in "The Gate of the Notch," where the ravine at the foot of the first very steep rise has been bridged by a granite causeway, reducing the grade from 30 to 10 per cent. This will be pleasing to all who tour there, for although the cars

have generally been able to get up on their lower gears, or by rushing, they will not be so inconvenienced hereafter.

Under A. W. Dean, the State engineer, with George D. Howland of Crawfords, in actual charge of the work, the highway forces and the Maine Central railroad's derrick crew have constructed the highway-waterway-railway improvements. The loose rock obtained from widening the highway at the top of the pass and from the railroad dump was utilized in constructing large retaining walls for the highway on one side and the railroad on the other, allowing the water to flow between them. This gives a width of between 18 and 20 feet for the road, with occasional places where 15 feet was the limit.

ROAD BETTERMENT IN CONNECTICUT

HARTFORD, CONN., July 26—State Highway Commissioner James H. MacDonald has purchased a large quantity of crude oil and distributing apparatus, and in the very near future will spray sections of the main heavy traveled highway in an endeavor to render the roads of the Nutmeg State dustless and fit to tour over. The Commissioner thinks well of the oiling proposition, if properly done, and he has taken every precaution to see that Connecticut's oiled thoroughfares will be the best ever. When it is realized that it costs approximately $500 per mile to water a macadam highway and the treatment is of but temporary benefit only, it is obvious that two or three coats of oil judiciously applied in the course of a season would prove far superior. If after this exhaustive trial of the oiling system the results are not eminently satisfactory, some other mode of dust laying will probably be resorted to. Tar is an admirable dust layer, but little of it has been used as yet. The best illustration of the utility of a well-tarred road is afforded by the stretch about the Capitol grounds used almost exclusively by high-powered cars. This road was treated two seasons ago and the road to-day, for the most part, is in excellent condition and practically dustless at high speed.

The Commissioner is carrying out the Summer plan of road betterment as fast as possible. Two stretches in Manchester, and one of three miles along the old Albany turnpike, through the town of Bloomfield, are now receiving attention. The ferry road from Saybrook to the Lyme ferry, one of the most abominable stretches in the State, will shortly be improved, of interest to motorists using the shore route.

A fine stretch over Weatogue Mountain, one of the most picturesque sections of the State, has recently been improved. A long stretch through the town of Milford, a portion of the uncompleted link between the New York and Massachusetts State lines, and another short stretch between Greenwich and Stamford will soon be in first class condition. An excellent gravel road of three miles has just been completed in the town of Windham. The gravel roads of the State seem to have withstood motoring travel very well indeed, as for instance, that portion between the towns of Norwalk and Wilton, which is now in good condition, though it has been built twelve years.

BETTER ROAD AROUND NORRISTOWN, PA.

PHILADELPHIA, July 26—Automobilists en route from this city to Pottstown, Reading and Harrisburg are beginning to use a comparatively new through route which goes around Norristown, Pa. Instead of running into the Montgomery County seat, approaching it from Chestnut Hill and Plymouth Meeting, the cars are continuing on the Germantown pike, joining the old Reading pike at the Collegeville Bridge over the Perkiomen. The usual longer route out of Norristown, over the Reading pike, is in very bad condition, the roads being rough and full of bumps, while the Germantown pike is in splendid shape. The Norristown Automobile Club has its house on the old road, and Harry B. Lasher, formerly a Philadelphia newspaper man, has opened the Fairview Inn, first established in 1732, on the new route. Both directions are equally fine for views of the beautiful Schuylkill and Perkiomen valleys.

ROAD CONDITIONS IN CENTRAL NEW YORK

The Automobile Club of Rochester is doing good work in its club publication toward keeping its members posted on road conditions and changes in Central New York. As many tourists are using the roads between Albany and Buffalo, it may be interesting to know some of the desirable changes. On the road from Syracuse to Geneva, for instance, a bad stretch of road through Seneca Falls and Waterloo can be avoided by taking the road north from Geneva along the New York Central Railroad tracks, about 3 1-2 miles out, turning east at right angles to Free Bridge. Going from Oswego to Binghamton it is advised that the south side of the river be followed. Between Little Falls and Fonda the road is being turnpiked. Road work is in progress between Chili and Churchville. As a detour it is suggested that tourists take the westerly road half a mile east of Chili and follow to the end of the road, turning to the left, which will eventually bring the tourist back on the main Buffalo road. All the roads around Albany are reported in good condition, and the entire route from Auburn to Syracuse is in fine shape.

SOME NEWS ABOUT NEW JERSEY'S ROADS

SOME helpful information has been supplied to prospective tourists in New Jersey by the good roads observers of the New Jersey Automobile and Motor Club. Extensive repairs being made on the road between Fort Colden, one mile east of Washington, N. J., and its junction with the Hackensack and German Valley roads, about one mile beyond Hackettstown, have necessitated the closing of that road for automobiles until about October 15. Tourists visiting the popular Pompton Lake section will be glad to know that sections of the road near the Pompton station have been coated with oil, but care should be exercised in crossing the bridge near Mountain station. The bridge is being rebuilt and a temporary one is in use, red flags being placed on both sides of the temporary structure.

SPEED TRAPS UNPROFITABLE IN CANADA

MONTREAL, July 26—The small towns in this province have nearly all abandoned their speed traps, as the new automobile law has made them decidedly unprofitable. The law now provides that all the revenue from automobile prosecutions shall go to the province, and all municipal speed regulations are cancelled by the clause that speed shall be "reasonable" but not in excess of nine miles an hour in cities, towns and villages, and fifteen miles on the open road. Although the use of "reasonable" in connection with these limits may seem strange, the law has freed automobilists from all fear of petty persecution.

BUILD BRICK ROADS INSTEAD OF MACADAM

PITTSBURGH, PA., July 26—The Road Commissioners of Allegheny County have decided to build no more macadamized roads. During the past five years more than 300 miles of macadam has been laid in this county. However, the wear on the macadam has made the question of repairs very serious, and the commissioners now intend to resurface all the macadam roads with brick as fast as the top dressing wears off, and to build all new roads of brick on a concrete base. They believe that this surface will last twenty years without repairs. The initial cost will be about one-third more than for macadam, but the contractors are willing to guarantee no repairs for five years.

NEW BRIDGE TO BE BUILT OVER CONNECTICUT

HARTFORD, CONN., July 12—The Lyme bridge bill has now passed both houses of the Connecticut legislature, and to become effective but awaits the signature of the Governor. The new bridge, when completed, will relegate the old flat-bottomed ferry boat to oblivion, much to the satisfaction of motorists who have been compelled to use the craft. An issue of bonds will provide the necessary funds for construction.

Functions and Frailties of Motor Cylinders

By Thos. J. Fay

LIMITING weight of the reciprocating parts is necessary, in order that the speed of the motor will be sufficiently high to afford power adequate to realize a high weight efficiency. Accelerating a considerable reciprocating mass will result in a loss of power, but the stresses in the crankshaft section are the most likely to demand a limitation of speed on account of inertia. It has been found in practice, under the several conditions obtaining, that pistons may be much lighter than would be indicated by superficial mathematical means ready to hand for use in determining the dimensions of sections.

Inertia of the Piston—For each square inch of piston area, the inertia will be as follows:

$$I = \frac{F}{a} = \text{inertia component, per square inch of piston.}$$

Amplified,

$$I = \frac{W}{a} = N^2 r (\cos \Theta + a' \cos 2\Theta)$$

and,

$$\frac{W}{a} = \text{weight of reciprocating mass in pounds per square inch.}$$

when, N = crank revolutions per minute.
Θ = crank angle.
r = crank radius in feet.
W = effective weight of reciprocating mass.
a = area of piston in square inches.

The effective weight of the reciprocating mass will be composed of weights as follows:

The piston.
Piston rings.
Wristpin and fastenings.
Reciprocating part of connecting rod.

In practice, the sum of these weights is as variable as between the respective designs of motors, and in motors in general, increasing as follows:

(A) with bore, and
(B) stroke.

Inertia increases as the square of the crankshaft speed, in revolutions per unit of time. The value of $\frac{F}{a}$ will be a maximum at 0 degrees of the crank, which is taken to be the top and bottom dead centers, and since inertia is induced by changing the motion of mass, as when the reciprocating parts are stopped and started, as they must be in the region of the dead centers, it follows that the tendency will be to react on the section of the crankshaft, rather than to introduce serious complications by way of undue friction, growing out of side pressure, of the piston against the cylinder walls, which will result in uneven wear of the cylinder bore.

Referring to Fig. 28, and to the table for piston proportions, the prime dimensions, allowable in practice, will be noted. It is not believed that these dimensions are absolute, nor can it be claimed that they are likely to result in the lightest pistons possible to use, but it is the aim, in the table, to approximate averages, within the zone of good practice.

APPROXIMATE DIMENSIONS OF PISTONS

Bore of cylinder	4	4.5	5	5.5	6
**A	3	3.375	3.75	4.125	4.5
B	6	6.75	7.5	8.25	9
C	3.995	4.4925	4.990	5.4825	5.985
D	3.990	4.485	4.980	5.475	5.970
E	1 9-16	1 13-16	2	2 1-4	2 3-8
*F	5-16	11-32	3-8	13-32	7-16
G	7-64	1-8	5-32	3-16	7-32
H	7-64	1-8	5-32	3-16	7-32
I	9-32	5-16	11-32	3-8	13-32
J	19-64	21-64	23-64	25-64	27-64
K	1-8	1-8	5-32	5-32	3-16
L	5-16	3-8	13-32	15-32	15-32

*F, as stated is maximum; if ribs are placed around the circle, of a thickness equal to that of the head, this value may be reduced somewhat.
**The distance A is a variable depending upon the amount of offset of the crankshaft. All dimensions are in inches.

The thickness of the heads are not readily determined by means of formula, for the reason that none is available such as can be recommended. In any case, the heads are usually slightly domed, which is a vast factor for strength, and ribs act as supports in compression, which is satisfactory when cast iron is used. The thickness given in the table is for unsupported flat heads, and a formula which may be used to approximate the thickness under these conditions was derived from the Ericsson formula for flat plates, by Prof. William Harkness, as follows:

Let,
T = thickness of head in inches.
D = diameter of head in inches.
P = pressure of gas in pounds per square inch.

when,

$$T = 0.00439\, D \sqrt{P}$$

Were it not for the difficulty involved in ascertaining the life of a piston in service, from the point of view of wear due to friction, it would be possible to calculate the results of friction with considerable accuracy, and by limiting the lengths of pistons, reduce the weight. Then, by having only one piston ring, the same to be tight against compression, the reduction in weight in this direction would be marked; unfortunately, it does not seem to be possible in practice to do with only one ring, and even the pistons which are fitted with three rings are sometimes in question.

To assure long life, the retention

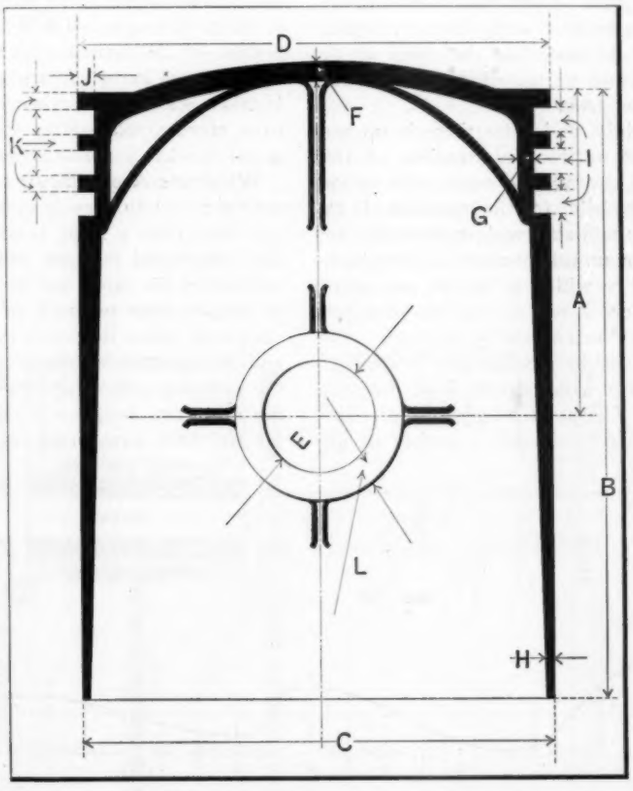


Fig. 28—Diagrammatic piston, serviceable in conjunction with the table of proportions of pistons

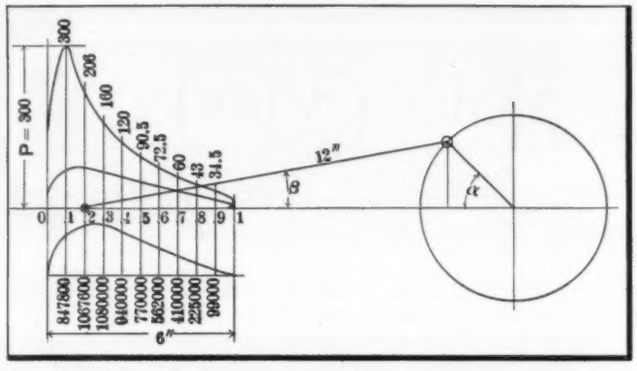


Fig. 29—Characteristic wave of pressure indicating point of maximum coming on power stroke

of compression, the pistons have to be long and the rings tight; the reason for using four rings is merely to be sure that one of them will be tight at all times. The dimensions given in the table allow for a slightly conical shape of the pistons, since the diameter at C, Fig. 28, is greater than at D. The difference is but slight, and the main reason for so finishing is to assure that pistons will not stick, as a result of unequal expansion due to heat and possible deformation.

Rings are supposed to bare on their top and bottom edges, and since the distance *J* is greater than the thickness of the rings, they will not be tight against the wall. The rings, since they must expand in the slots, working in and out, as the occasion requires, hence they must be a bearing fit, or they will stick, and fail to expand in answer to the inequalities. The right fit of the piston rings, under the circumstances, is that which will enable the fitter to move them freely when they are in place.

Cylinders Are Likely to Be Slightly Conical—No matter how well the work is done, cylinders are likely to be slightly conical, which is due to deformation of the boring bar, as it reaches into the bore, in the absence of a back bearing for the bar, and too, expansion, due to heat, and internal strains will be present to some extent, as a rule. Under the circumstances, while the cylinder is supposed to be true in the bore, it departs from this condition enough to demand that the rings in the piston be perfectly free to respond to the different diameters to be encountered throughout the stroke.

Thin pistons may deform slightly, and since there is no way of determining as to the extent of this deformation, all that can be done is to allow sufficient clearance to assure free action, which clearance should be closely held, for, in operation, if the clearance is excessive, the pistons will slap against the walls, and make a decided noise. The maximum side pressure of the pistons against the cylinder walls should be within 40 pounds per square inch as an outside figure, and were it not for the ills of excess weight, even 20 pounds per square inch would be desirable. The higher the pressure, the greater will be the difficulty in lubricating, and that the life of the motor will shorten, from the same cause, is reasonable to assume. The point of greatest pressure, in the bore of the cylinder, will depend upon a variety of circumstances, as angle of advance of the ignition, inflammability of the charge, etc. As a general proposition the wave of pressure will be as shown in Fig. 29, and maximum pressure will occur at about 1-4 of the power stroke. On the compression stroke, the maximum pressure will come when the crank is at 45 degrees, and since this will bring the piston at the same point it follows that maximum pressure, wear, and compression will tend to reduce the bore in about the same position. Fig. 30 is a characteristic diagram of piston pressure and illustrates the variations in the wave of pressure during the four cycles. This same curve shows how the maximum pressure during each cycle falls so nearly at the same point in the bore of the cylinder that it is necessary to limit the maximum pressure to that which will not squeeze the oil out from between the surfaces and allow them to run dry.

Offsetting the Crankshaft Helps to Relieve Pressure—In order to reduce wear of the cylinder wall, the crankshaft is offset sufficiently to equalize the thrust. Since the thrust to one side is greater on the down (power) stroke, by the simple expedient of offsetting the crankshaft, the excess of thrust may be delivered to the side of least thrust, hence the equalization. With a very short connecting rod, the offset should be a maximum, and in fine, increasing the length of the connecting rod, reduces the necessity for offsetting the crankshaft. Offsetting seems to be required when the length of the connecting rod is less than double the length of the stroke, and when the length of the connecting rod is three times that of the stroke, there is no advantage at all in resorting to this practice.

Wristpin Will Feel the Effect of Inertia—Since the piston is related to the connecting rod through the wristpin, the weight of the piston will induce inertia effects on the section of the wristpin, in magnitude, relatively feeble as compared with the stresses which will be set up in the section of the crankshaft. In a general way, since the weight of pistons represents about 50 per cent. of the total effective weight, from the inertia point of view, it follows that the sectional area of the wristpin should be at least 50 per cent. of the sectional area of the crankpin, when the section of the crankpin is adequate to sustain without undue fiber strain at the maximum speed at which the crankshaft is likely to rotate. It will be a simple problem to calculate the section of the wristpin in view of inertia, when the weight of the piston is known in any given case, just as the whole inertia is taken into account when it is desired to investigate the merits of a given crankshaft in view of inertia considering maximum speed as when a motor is relieved of its load.

Wristpins Are Difficult to Hold in Place—Since the ends of wristpins are in close proximity to the cylinder walls, should a pin float, even a little, it will score the cylinder wall, and then the compressed mixture will leak by, thus destroying the good relation of the same, and lowering the power of the motor. Fig. 31 depicts four methods of holding wristpins in place, and A shows the most defective one. The pin is tapered at one end, and the resultant of the pressure tends to press the pin towards the cylinder wall, while the set screw resists the effort; should the set screw back away, which is within the possibilities, the pin will back away from the taper and do much damage. B, of

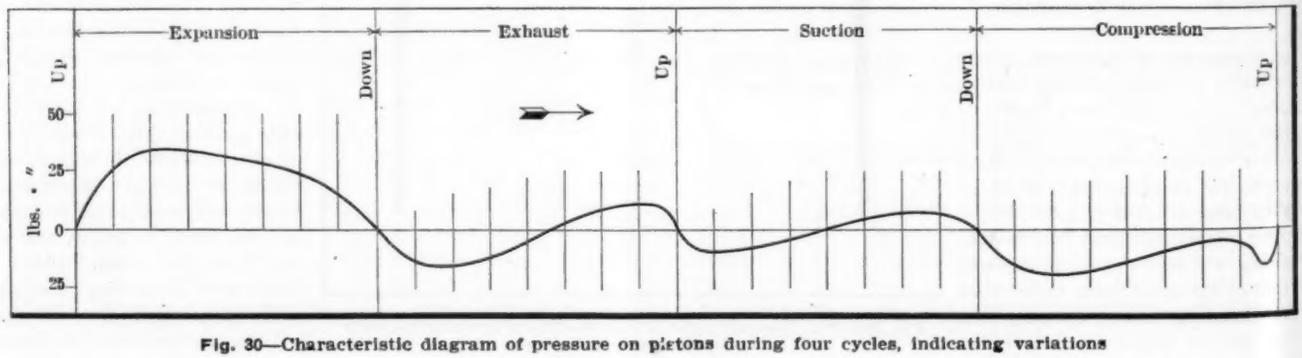


Fig. 30—Characteristic diagram of pressure on pistons during four cycles, indicating variations

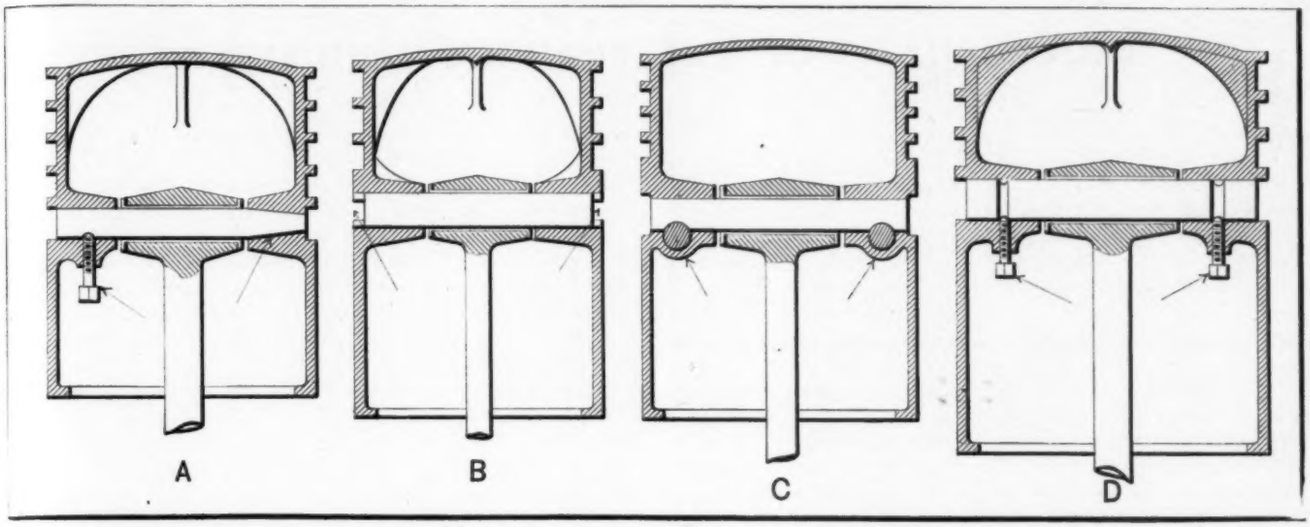


Fig. 31—Illustrating methods of fastening wristpins to prevent them from floating out

the same figure, is of a plan which works very well, in that a piston ring encircles the piston over the wristpin holes, and the pin cannot migrate out because the ring is in the way. C represents another security method of great competence, in which two bolts are passed through the boss, cutting the wristpin, and preventing it from turning, or floating out. D is a scheme involving the use of set screws, and grooves in the wristpin in which the ends of the set screws enter, and the pin will stay in place just so long as the set screws remain in the relation as shown; even one of the screws will suffice for the purpose.

Fig. 32 represents another series of methods of holding wristpins in place, and A of this series is probably the most secure method, involving the use of but one set screw, which passes through the boss and into a socket in the wristpin; the set screw is prevented from backing out by means of a cotter pin, which in turn is prevented from backing out. B represents a scheme, of recent origin, used in a well-known German product, and the disadvantage is by way of excess weight of the piston, owing to the amount of metal allowed for the taper pins to pass through. C shows a case in which the wristpin is fastened to the connecting rod, and the bearings are in the piston. A tapered pin is placed to prevent the wristpin from backing out, or turning in the connecting rod. D is of a two diameter wristpin, which is superior to a tapered end, since the fits are parallel, and the pin is free from the tendency to drift out.

Wristpins should be as light as possible consistent with strength, taking into account the nature of the stresses, which are mostly in shear. The diameter is fixed in view of bearing pressure, rather than to afford strength in shear, and it is a natural sequence that a hole will be permissible through the pin. It is never a risk to make the hole equal to half the diameter of the pin, and by calculating for shear, it is generally possible to enlarge upon this measure of the diameter of the hole.

As a rule wristpins are made of alloy steel in order to be able to make them very light, and to afford an extremely hard surface to withstand the high and variable pressure. Kinetic ability, in view of the shock nature of the load, is also one of the requirements, and on this account the older practice of employing tool steel is being eliminated. Even when alloy steel of accentuated kinetic ability is used, it is desirable to heat-treat the same with a view to affording the greatest possible measure of kinetic ability, without diminishing the surface hardness or the strength to adequately resist shear.

The wrist-pin bearing, or bushing, is sometimes made of case-hardened steel tubing, ground to size, allowing sufficient clearance to accommodate a double film of oil, which will approximate 0.006 inch. In other cases the bushings are of phosphor-bronze, with very thin walls (3-32 inch), the idea being to afford the good qualities of this material, and to abort deformation by having the walls as thin as possible. A certain amount of end play is allowed for the connecting rod, which is necessary in view of the end play of the crankshaft.

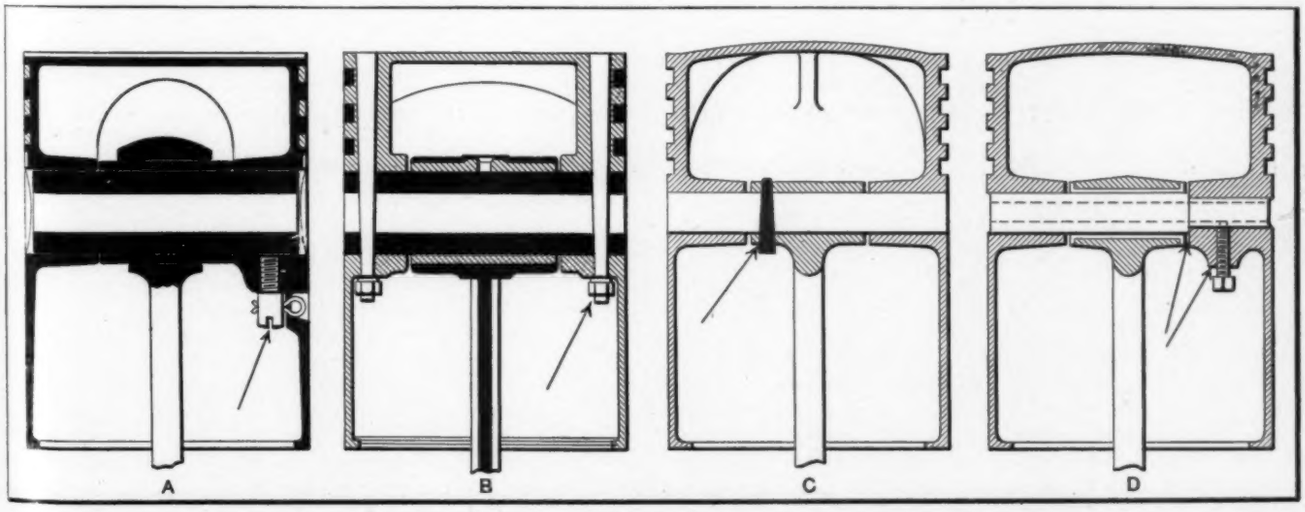


Fig. 32—Indicating additional methods of securing wristpins to prevent them from drifting

REQUIREMENTS OF THE PHYSICIAN'S IDEAL CAR

By A. D. HARD, M. D.

AUTOS specialized for particular work are becoming available for various uses. The police patrol wagon, the fire automobile, the hospital ambulance and the auto-hearse are now in use, and we hear of the traveling salesman's auto and the physician's motor vehicle. It is of the last named that I wish to speak, as I have been investigating along this line for the past eleven years. The first motor vehicle used by me for taking me as a physician to my country calls was a steam "Mobile," made at Tarrytown, N. Y. It was the fifty-second machine put out by that maker, and was undeveloped in a great many ways. It would get out of order on the slightest provocation, and was about as near being just what a physician does NOT want for service as one can imagine. But many of the faults of that primitive machine are still in evidence in the automobiles which are offered as very suitable for physicians' use to-day.

The physician who does practise in the country of the Western States requires definite factors of a special nature in the motor vehicle which is called upon to do him service. A request to come at once to relieve human distress, or to attend at a birth, or to attend the victim of some accident requires that the physician shall be taken with absolute certainty with speed and peace of mind to the scene of his work. There must not be troubles on the road to jeopardize the patient's life nor disturb the physician's cool, deliberative frame of mind which may be so very essential.

For generations past the scrub team and old buggy have been doing this work until a standard of certainty has been established below which the automobile must not fall if it is to supplant these almost relics of by-gone days.

In order that the automobile shall be specialized for the country physician's use, it must be developed along the lines which provide against uncertain service. This is of far more importance than that it shall make unusual speed. The most common uncertainties connected with ordinary automobile use on country roads, where service and not pleasure is the main requirement, consist of pneumatic tire failure, lack of road clearance, involving unusual care in running, and lack of car ability in getting out of soft roadway spots where the drive wheels lack traction and gradually bury themselves until they are not only powerless, but are very difficult to get out by outside help. These three factors tend toward distrust of the automobile for physicians' use. They must be eliminated before the automobile can be a perfect service machine practical for physicians' everyday use.

I have tried to solve these three problems, with a reasonable degree of success, but there is not at present any market supply for the demands of the physician who desires the advantages which I describe. In order to render pneumatic tires as nearly proof against uncertain service as solid tires, I have placed inside my tire casing an inner shoe composed of several layers of canvas fabric imbedded in rubber, and covered the outside of the casing with a steel rivet-studded chrome leather protector, of which the Brickstin cover and several others are found on the market. This renders my tire almost proof against road injuries, and, while it decreases somewhat the resiliency of the tire, it still is far better than a solid rubber tire for use. I get better traction, less skidding, freedom from punctures, wear resistance and pneumatic softness. This gives me the most dependable tire that I have ever had. In order to get proper speed reduction from motor to driving axle—a reduction which will afford speed enough of the motor to get good service, and yet not too much speed for the driving wheels, and at the same time get proper clearance under the car to avoid the worry of using great care in running—I consider shaft drive to a jack shaft and double chain drive to rear wheels as the very best for our country roads. There are such cars on the market, and they are very desirable where boulders and section mile stones project from six to twelve inches amid grass and weeds in the center of the road at frequent intervals.

In order to render my progress certain and independent of outside help in case of stalling, I have devised a small iron windlass, arranged with an anchor that can be crowded into the ground with the foot, by means of which I can wind up a small wire rope and drag the car with great force, though slow speed, out of any ordinary mudhole or deep obstructing rut. With this device I can get through many places in thirty minutes which otherwise would require hours of trouble and delay, and I do not have to humbly implore some farmer to hitch up his team and pull me out.

If the time comes when we can have four-wheel drive to our cars the physician should buy such a car. The maximum speed needed for a physician's use need not exceed thirty miles per hour. This would give a better delivery of traction power than to throttle down a high ratio. The weight of a doctor's car need not be as great as is common with present roadsters. There are many little unnecessary things in the common car that add weight and can be avoided. In my present car I have found sixteen bolts which might be left out entirely by slight variations, permitting one bolt to do double service. There are many parts that are not carefully thought out so as to get proper strength with minimum weight. There are several parts which do not add to the actual effectiveness, but add considerable to the weight which must be carried around to the great disadvantage of the tires, the power consumption and the handling of the car in general. Thousands of physicians are waiting for the automobile that will give proper service in their work, and until the troubles which I have indicated are obviated they will not dare to give up the horse-drawn rig that has stood the test of time.

PRODUCTS OF DISTILLATION OF PETROLEUM

In testing gasoline, as it is used in automobile motor work for fuel, since it will be necessary to distill off the fractions, they can be divided in the manner as follows:

Temperatures	Name	Percentage	Density
45	rigolene	trace	0.590 min.
45-60	chymogene	trace	0.625 max.
60-70	gasoline	1.5	0.657 "
70-120	naphtha C	10	0.700 "
120-175	naphtha B and A	5	0.737 "
175-250	kerosene	50	0.820 "

Decane, which has a density of 0.738, should be about the limit, as an outside figure, in automobile gasoline, rigolene should approximate butane, the density of which is 0.600, chymogene approximates pentane, the density of which is 0.626. Gasoline ranges around hexane, the density of which is 0.674, heptane stands between gasoline and benzine, the density of heptane being 0.688; benzine belongs in the class with octane, the density of which is 0.719.

ADVANTAGE OF THE GRINDING OF CYLINDERS

In the machining process, if cylinders are to be ground, it is unnecessary to do the machining work with great accuracy, and the effect of rapid tooling is of no consequence, since the bore will be rendered true in the final grinding process. Grinding results in a true bore, because the work is not done at such a rapid rate as to cause the cylinder to warp, and the grinder will cut the hard spots as well as it will the soft; this is not so true when the bore is finished by tooling, because the tool cannot be rigidly held, and it will back off (a little) when it butts into a hard spot. It may not be generally well understood, but cast iron may be very hard in spots, due to "chill" which brings on a mottling of white iron, in zones, or over the whole surface of the gray iron casting. Chill is not a sign of the best castings for the purpose, but it is bound to be present sufficiently to make grinding an advantage. In grinding, modern machines are designed for the especial purpose.

LETTERS INTERESTING AND INSTRUCTIVE

FRONT BRAKE DISADVANTAGE

Editor THE AUTOMOBILE:

[1,957]—Will you please inform me through "Letters Interesting and Instructive" what are the drawbacks in having the brakes on the front wheels as per your article in the June 24 issue, stating that they were being tried out in England. A. E. B.

Watch Hill, R. I.

The principal reason why front brakes are not more generally adopted is because of the complications attendant upon their use. This will be apparent to you if you consider that the brakes must be so rigged up as to operate at whatever angle the wheels set; that is, the brakes themselves and their operating mechanism must rotate, or at least turn with the front wheels when they turn. This really is the only reason of weight which can be cited against their use. On the other hand, superior braking effort, prevention of skidding and other reasons are claimed for them.

Since their first trial on the other side several very large and important firms have taken them up, and no less than four or five English cars may be purchased in the open market so equipped. If they are successful in England, why not here?

MAGNETO NOW UNIVERSAL

Editor THE AUTOMOBILE:

[1,958]—I have a small bet with a friend which I would like to have answered through "Letters Interesting and Instructive."

The bet is that 75 per cent. of the standard makes of automobiles listing from $1,500 up in the 1909 models have a magneto as a part of the regular equipment and without extra charge from the list price. C. B. CONRAD.

Richfield Springs, N. Y.

In the February 4 issue of THE AUTOMOBILE you will find a very complete list of the cars for 1909. Taking this list as a basis, it is found that there are 264 cars above $1,500 in price, and that of these just thirteen do *not* fit a magneto as a regular equipment, or at least without an extra charge. This is but 4.9 per cent. of the total number, or, to put it as you did in your letter, 95.1 per cent. of the cars above $1,500 in price fit a magneto regularly. Of those which do not there are four Elmores in the list, and these cars are equipped with a Spark Generator, which is the practical equivalent of a magneto. To give some idea of the cars which do not fit a magneto as per the list spoken of above, it might be stated that seven are two-cycle, four air-cooled, and the other two friction-driven.

CARBURETER TROUBLE

Editor THE AUTOMOBILE:

[1,959]—I have made it a practice to cut out any article which I read in your paper and paste it in a little scrap book, that is, if I think it is an article which will come in handy at some future time. I have been greatly helped on more than one occasion by these articles, but of course instructions for any particular work are not always clear when an adjustment on an article of an entirely different make or manufacturer is under consideration.

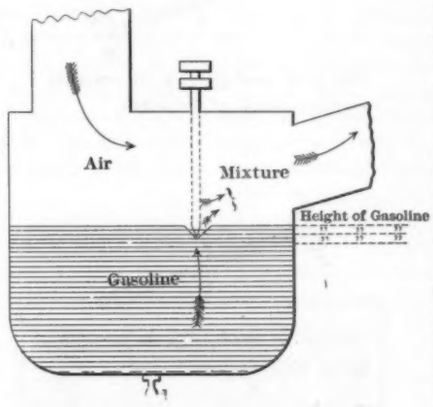
I am having trouble with my Holley carbureter after it has given me good satisfaction for two years (1907 make). After having gone all over my engine, I was fully convinced that the knock and sluggishness must be in my carbureter. I took the float out and found the shellac had disappeared from many parts of the cork float which permitted it to absorb the gasoline, making the float heavy and slow of action.

After scraping and reshellacking the float, I cannot seem to get the height of the gasoline at exactly the proper place to give me the old-time power and satisfaction.

The gasoline is forced upward through a counter-sunk hole in the bottom of the air chamber. The question is, with the car not running, how high is the gasoline to be in this countersunk hole; at the very bottom, halfway up, or flush with the bottom of air chamber? If you can enlighten me on this subject, I should be greatly obliged. No. 1,169 does not give me the desired information. F. H. THOMPSON.

New York City.

Your trouble apparently lies in the float which got soaked with gasoline and was never dried out, so that even if it were



Carbureter Has V-Shaped Fuel Inlet

scraped and re-shellacked the float was still heavy and consequently sluggish from the gasoline within. The best way to fix it will be to throw the old float away and put in another, which can be given an extra coat of shellac to avoid future trouble of the same sort.

In so far as your last question is concerned, the float should give the same level, whether the car is running or not, its function being to admit the fluid to the chamber as fast as the engine uses it up. This level should be the top of the small countersink of which you speak. The reason for this is that there should be an appreciable amount of gasoline in the bottom of the air passage for the air to draw on in starting up the motor. If there is no puddle of fuel there, in this type of carbureter it will be necessary to turn the motor over about a dozen times before enough fuel is drawn to start it.

With the gasoline level at the bottom of the countersink this would be the case, and with the level but half way up the matter will not be much improved, so the top is the proper level, and the float adjustment should be such as to attain this level.

SLIDING GEAR OR PROGRESSIVE?

Editor THE AUTOMOBILE:

[1,960]—Will you kindly tell me through "Letters Interesting and Instructive" the advantages of a four-speed selective transmission over a three-speed progressive, such as the Stevens-Duryea, for a six-cylinder car weighing 3,800 pounds and having 55 horsepower. REX C. EATON.

Estes Park, Col.

Over the selective type of gear, the progressive form has these advantages: a single shifting lever, shifting in a single direction; that is, being way forward, a continuous backward pull will give in order every successive speed; since it is necessary to shift into low to start, and then pick up the various speeds as the car gains headway, the lever continues to move in the one direction with no chance for a mistake.

On the other hand, the advocates of the sliding gearset with selective changing claim that the progressive gear box is very long, and consequently very heavy; that in stopping it is necessary to remember always to shift backward through all speeds to low, so that when starting again the gears are in the low position; that more gear changing is necessary with the progressive form than with the selective, and that for this and other reasons novices damage more gears.

Principal among the advocates of the progressive gear in this country are Packard, Stevens-Duryea, Royal, Franklin (1), Middleby, Studebaker (1), Sultan, Gaeth and Acme (1). Among the French constructors these prefer the progressive form: Renault, C. G. V. (all but 2), Panhard, etc.

As for the three-speed and four-speed proposition, that is an entirely separate matter, since both forms of transmission may be constructed with two, three, four or more speeds. The argument for a large number of speeds, regardless of the form of transmission, is this: The greater the speed range of the engine—that is, the greater the difference between the slowest and highest speeds possible—the greater the necessity for many changes, since without them the large range is divided over but few intervals, which means that the engine must run very slow at the bottom of each interval and very high near the top of each interval to maintain a constantly accelerating rate of speed, or the reverse when slowing down. By dividing the interval into a larger number of steps the action of the engine in covering each step and overlapping into the next higher or lower is more constant.

Introducing the six-cylinder engine changes the problem very materially. Without going into that here and now, it may be said that the more flexible the engine the less the necessity for a transmission, as witness the very flexible steamers made without one. So, with the most flexible gasoline engine it seems reasonable to

think that a lesser number of speed changes would be needed, rather than more. From this viewpoint it would seem as if the proper transmission for a "six" would be a three-speed.

CONDEMNS STILZ ENGINE

Editor THE AUTOMOBILE:

[1,961]—If the notice of the Stilz engine and the enthusiastic editorial thereon in your issue of July 8 is cunningly contrived to arouse controversy, then it is well timed; for, at the present time there is no more interesting subject in the sphere of the automobile all over the world than the engine. From reports received it is evident that the Old World is exercising its mind strenuously on this subject.

The reason for this is evident, the rest of the automobile being a matter of mechanics only while the engine involves physics, deep and hard to understand; at any rate, rendering the attainment of perfection extremely difficult.

Your editorial is an indication of this, for, while showing the interest, yet it is likely to lead inventors and investors astray. My criticism is based upon your suggestion that there may be value in the Brayton or "Constant Pressure" type of engine, this type having an air, or mixture, pump, a passage or reservoir for conveying or holding the working fluid, and a working cylinder; the working fluid being maintained at a constant pressure from the time it leaves the air pump until the supply to the working cylinder is cut off.

The rotation of the engine is produced by the differential action of the pump and working cylinders, that is to say, that it is necessary that the working cylinder be larger than the pump, otherwise the engine will not operate. Hence the work done can only be in proportion to the difference of displacement of these cylinders.

The pump is negative, and the working cylinder positive, but only usefully so by the difference of displacement. This means that the mechanical efficiency of the combination must be low, even if we consider only the losses by fluid friction, neglecting the friction losses of the many moving parts of large size, such as pistons.

From the above it is seen that, no matter at what pressure the engine is operated, it is bound to be much heavier than one in which the pumping and power producing operations are both carried out by one simple mechanism, such as the trunk piston in the ordinary four or two-cycle engine.

As to thermal efficiency. The loss of heat in the cooling of the pumped air or charge, as described, is so much lost work. This is easily seen when one considers that supposing the pumped air were not cooled, then its pressure would be so much higher and less work would have to be done to attain the same result. The recovery of heat from the exhaust gas heater mentioned in the article is of no value to the thermal efficiency of the engine, for the heat loss I refer to has gone to the atmosphere, and cannot be recovered.

By far the greater heat loss, and that which renders this type of engine so extremely inefficient, is that to the working cylinder walls, this loss becoming greater as the size of the cylinder is reduced.

The theoretic thermal efficiency of a Brayton engine, neglecting all heat losses is 30 per cent.

The actual thermal efficiency so far obtained is not more than 8 per cent.

The ordinary four-cycle stationary engine can be relied on to give 25 per cent.

The average automobile engine shows 15 to 18 per cent.

The Diesel engine has actually shown 45 per cent.

It seems waste of time to work on a system so defective, although the allurement of the analogy "like a steam engine" is very enticing so long as one does not consider the cost in weight of engine and volume of fuel per horse power, which actually render such an engine useless for the purpose.

HUGO C. GIBSON.

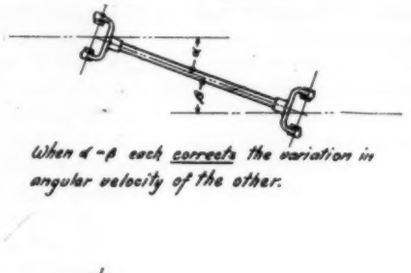
New York City.

Mr. Gibson pays us a great compliment in his opening inference that the article relative to the engine in question was only published to start a controversy, which of course was not the case. The closing sentence of his letter, in which he says: "* * on a system so defective," seems to stand without proof unless he imagined that the previous statements of the results obtained from a Brayton engine in 1873 can be considered as positive proof. Since this statement is directed against a type and not against any individual form or shape which experimenters have seen fit to give it, it is not fair to judge the type as a whole by the worst example. The inference, too, in the statement, "Not consider the cost in weight of engine and volume of fuel per horsepower," is that the form under discussion is both heavy and wasteful of fuel, neither one of which have been proven, so that they must be regarded as Gibson estimates.

CLEARS UP UNIVERSAL JOINTS

Editor THE AUTOMOBILE:

[1,962]—Referring to your answer to No. 1,915, in the June 17 issue of "The Automobile," I am inclined to take the same view of your answer as Mr. Vanderbeek in his letter (No. 1,930) in your July 1 issue.


When α-β each corrects the variation in angular velocity of the other.
When α-β each adds its variation to that of the other, thus doubling it.

Sketch of Joints in Inclined Plane

Possibly another sketch, considering the middle section only, would make the matter more clear to the non-technical reader. I am adding this suggestion to what has already been said, for the reason that I consider the point a very important one, and one with which all manufacturers, garages, or others who are liable to have to do with the assembling of propeller shafts, should be familiar.

SPICER UNIVERSAL JOINT MFG. CO.
Plainfield, N. J. C. W. SPICER.

MORE ABOUT BUICK TROUBLE

Editor THE AUTOMOBILE:

[1,963]—In answer to No. 1,926, I would suggest that Don S. Numbers remove the left wheel and, by hammering the washers on the studs which hold the expanding band, restrict the side play of the brake band. It is also advisable to clean off the brake facing with gasoline and make sure that the brake spring is not only sound, but tight enough; as a weak spring will sometimes cause the rattle he mentions.

MURRY FAHNESTOCK.

Allegheny, Pa.

This gives another view of the trouble experienced by a Western correspondent with a Buick Model 10. Thus far, the three remedies suggested by those who have suffered in the same way have been: Bolts so long as to strike brake mechanism; loose emergency brake bands; and now, brake band holding washers and weak brake springs. Surely with these numerous helpful suggestions at hand, no owner of one of these cars should ever need towing home.

HAS NUMEROUS TROUBLES

Editor THE AUTOMOBILE:

[1,964]—Will you kindly advise me the cause and remedy for a knock in my engine which occurs only when running on partly open throttle. My automobile is a two-cylinder opposed 22 horsepower. This knock seems to occur when I shut off throttle (as in going over a rough place in road or around a corner), and open it quickly. Engine seems to respond quickly to throttle when standing still, but not when running as mentioned above.

My engine has just been cleaned, and is a new one, having been used only three months. Could the cause be faulty carbureter adjustment? I have a Schebler carbureter, Model D. Please explain how to adjust properly, the air valve to carbureter. How can you tell when you have too much air or not enough?

I also have a Remy magneto Type L on my car, and I find I have to run on my batteries almost all the time unless engine is speeded up; then magneto works all right, but when running idle, engine will die unless switched on to batteries. I have only had my magneto about two months; bought it from a garage for a new magneto. Is it likely I was sold a second-hand one—one that has lost its power, or is it faulty adjustment? ROY N. CHELF.

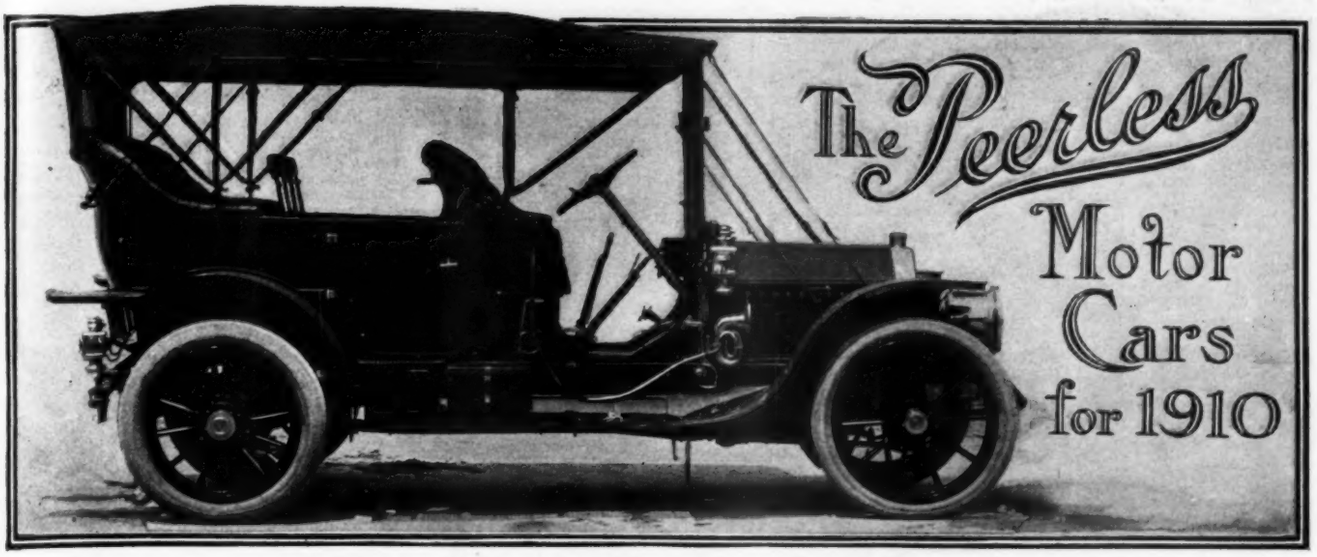
Brooksville, Fla.

From the way in which you describe your trouble it would appear as if there was too much play in the connecting rod bearings, which can only be fixed by taking the entire engine down, scraping the bearings and tightening the connecting rod caps, which should be done so as to decrease the amount of clearance between the pin and the bearing. It is barely possible that this can be accomplished by simply pulling the connecting rod bolts up tighter.

On the Schebler carbureter the air valve stands vertically, with the adjustment at the bottom. There is an adjusting nut and a locking nut. To adjust, run your engine as rapidly as is possible, with the throttle wide open, and vary the auxiliary air adjustment, noticing as you do so whether the engine runs better—that is, faster, or not. In doing this you will soon notice an approximate point at which the motor will act best; then, confining your efforts to this point, determining it as closely as possible. It is doubtful if you will get this exactly right the first time you try to adjust, but by getting it very closely and then running the car with it that way you can readily determine whether the engine needs more or less air.

Your magneto trouble sounds like faulty adjustment, and it would be well for you to seek advice from the manufacturer. This is a good make of magneto, and when properly adjusted it should ignite the motor charges in a proper manner—not for a short time, as you state, but continuously and regularly. Moreover, other things being equal, it should work better, rather than more poorly, at high speeds. If the garage sold you an old magneto, representing it to be a new one, you should be able to get redress in a legal manner and in such amount as would reimburse you for expense incurred with it, even to the extent of payment for sending it to the factory to have it examined and made right.

It is just possible that part of the knock which you experience is due to opening and closing the throttle too quickly, as this always makes an old engine knock.



As Model 27 Peerless Four-Cylinder Touring Car Appears In Its Latest Form

ALL that the name implies, is a catchy phrase which applies with peculiar force to the product of the Peerless Motor Car Company, of Cleveland, O., since the makers try in all of the shop methods, purchases of material, and even in the sale of finished cars, to attain the very highest, or peerless, grade. That this has been successful is now beyond question and the product of this concern's shop, shown complete on another page as it appears to-day, is fairly granted a premier place in the list of good cars, whether foreign or domestic.

In the purchase of raw materials, not only has this country been gone over as with a fine-toothed comb, but all of Europe has been drawn upon to secure the best materials, so that every part of the car, no matter how small, will be up to the standard set for the whole, namely, without a peer.

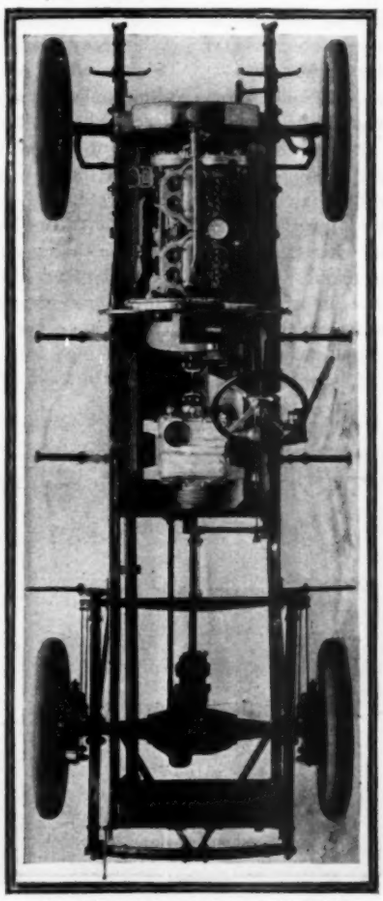
If the result of this active campaign for the best in materials and workmanship is not reflected in the workshop appearance, it would be hard to say where it would be shown. So the view on the next page shows the present appearance of the Cleveland shop. This was not a spontaneous growth, but rather grew to its present imposing size little by little, each year seeing the necessity for another big addition, until it ultimately reached the present vast expanse. Even now, rumor has it that another addition would be welcome for the floor space it would afford.

There Are No Changes Over Last Year—As the adjacent view of the assembled chassis displays, the whole construction is the same as in previous years, no changes worthy of the name having been made. This, put in another way, means that in an extra year of hard service no additional fault developed. For the ensuing year three models will be staged, known to the trade as: Model 27, a four-cylinder car of 30 horsepower, equipped with any desired body, or even the bare chassis may be purchased; Model 28, a 50-horsepower, 6-cylinder, with a long list of body types, and the new town car, Model 29, a 20-horsepower "four," which is only turned out with limousine and landaulet bodies.

The engines of the two former are alike as to bore and stroke, this remaining unchanged at 4 7-8 inch by 5 1-2 inch, while the new little motor also inclines toward a long stroke, the dimensions being 4 by 4 5-8, which gives a ratio of 1 to 1.155 as against 1 to 1.3 for the older engines, revealing in this the modern tendency toward a longer stroke relative to the bore, said to give also much more power.

Conservative rating is in force on all models, as is evident from a brief mention of the A. L. A. M. rating for the three sizes, these being 38 for the motor actually rated at 30, 57 for the so-called 50-horsepower engine, and 25 for the little fellow, which is called a 20. All three cars are to be had with comparatively long wheelbases and rather large tires, the combination which always makes for ease and comfort of riding.

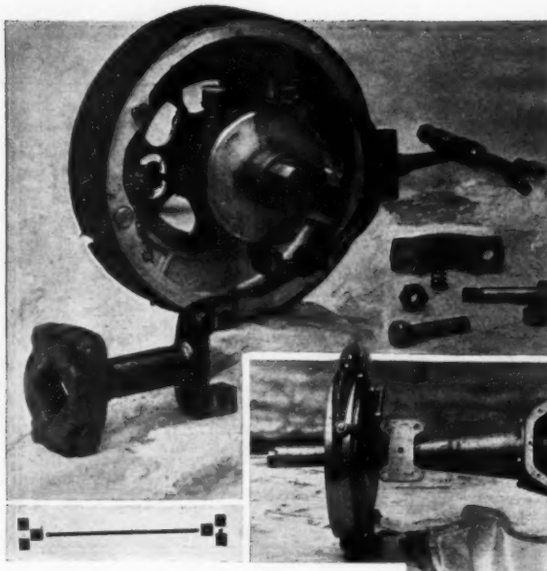
Interrelation of parts and their location, as shown on the chassis of Model 27, is the same for all models. The engine is placed in front, drives through an expanding band clutch and a readily detachable universal coupling of simple design back to a four-speed transmission located in the center of the car, right under the driver's seat and hung on a sub-frame, thence by exposed propeller shaft back to the differential mechanism and full floating rear axle, the latter retaining its distinctive feature of two universal joints incorporated in the construction to allow of sustaining the camber of the wheels and arched rear axle, which give the Peerless car such a different rear appearance.



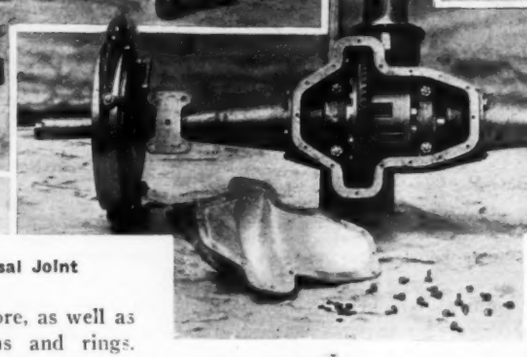
Complete Mechanism of Model 27

Details of the Power Plant—To chronicle the changes in the engine, or in fact, any part of the car, is to go into the infinitesimal, so that the statement made above that there are no changes, is practically true. Thus, to take up the motor parts, the crank case is as before, a one-piece casting of aluminum, but with an increased number of stiffening ribs. The rear portion of the case is made slightly larger, particularly the oil reservoir, which now has an increased capacity and the oil pump enclosed within it, making the lubrication system complete in itself.

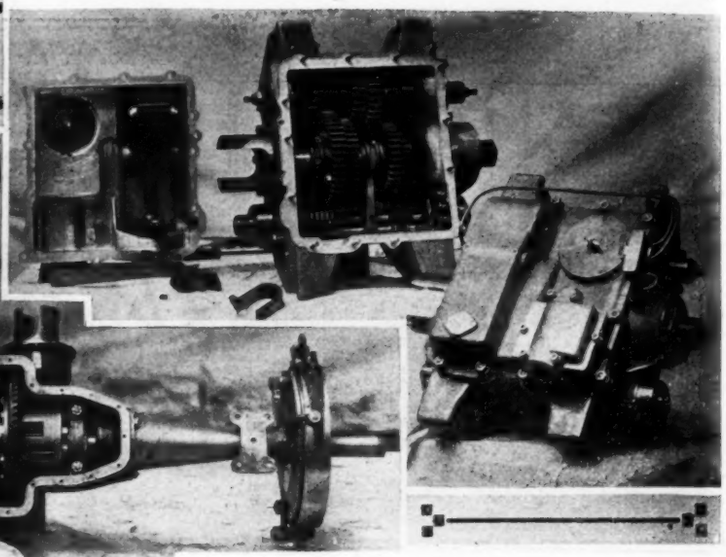
The cylinders are cast in pairs with offset intake and exhaust valves, these being made with taper seats from a special imported alloy steel. The cylinders pass through the most careful machining process given to any part of the car, being bored, reamed, ground, and finally lapped with the pistons and rings in place, a special polishing preparation being used. This results in an almost perfect sur-



Clutch and Universal Joint



Rear Axle with Cover Off



Four Speed Gear Box Shows Few Changes

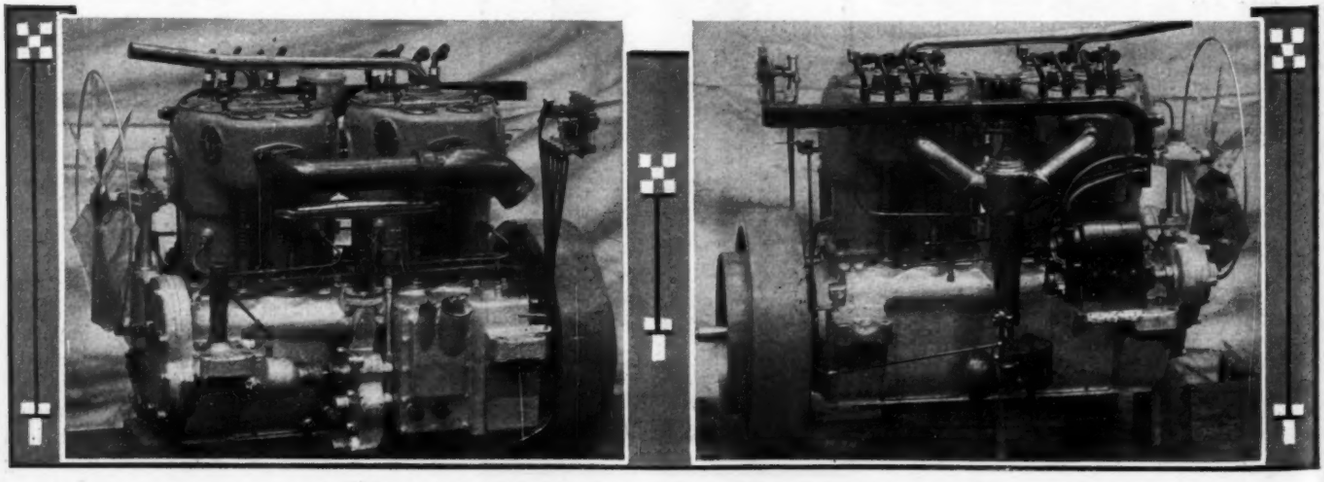
face for the cylinder bore, as well as perfectly fitting pistons and rings. Since this method insures compression tight cylinders, which means starting on the spark nearly every time, the extra work is well worth the time it takes and the money it costs. Strictly aside from the starting feature, this makes a smooth engine.

An additional precaution taken to have the engine parts right lies in the balancing operation; each part which enters into the rotating element is carefully balanced singly and then in combination with the others, in pairs, and last in groups. Finally, the whole is tested for running balance.

Carbureter Is Slightly Changed—On Models 27 and 28, a vaporizer of new design is used, which embodies several very important improvements. Ae the right-hand view below shows, the carbureter is really in one piece with the inlet pipe, the former being placed very low down on the right side of the motor. This low position is not accident but design, the float chamber in that position being so low that fuel is supplied to the engine under gravity feed on any grade likely to be encountered even with the gasoline tank nearly emptied. As will be seen, the form of the vaporizer is very simple, while the inlet pipe is made different from the usual run to co-act with it properly. The mixing chamber within the pipe is of larger capacity to provide a better mixture when the motor is throttled to slow speeds or working hard on hills. A single seated, vertically acting throttle is used, this being controlled by hand lever on the top of the steering wheel, by foot accelerator pedal, and by a sensitive governing device, which regulates the throttle opening to the motor speed regardless of load. The other side of the engine carries the pump drive and piping, as well as being the side upon which the oil reservoir is located. The pump is gear-driven and of the gear type, herringbone gears being used to insure absolute silence. These gears are placed in a vertical position, one above the other, the top one being driven.

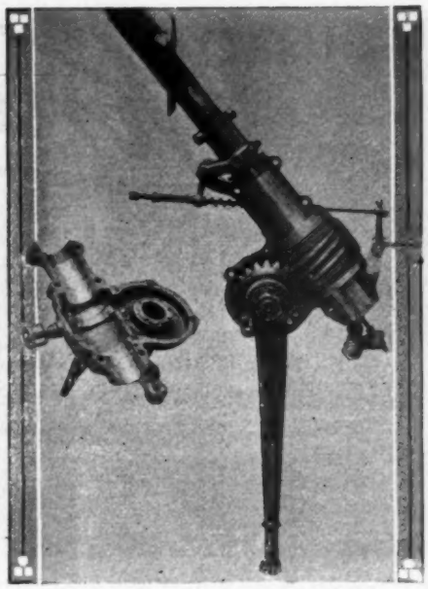
Transmission Case Moved Forward—Still located in the middle of the car, the gear box has been moved slightly forward, making it possible to move the quadrant on which the change speed and brake levers operate forward to a vertical position within easy reach of the operator, and more comfortable withal. This forward position of the case allows of easy inspection, oiling or cleaning, since the case, and with it the cover, is directly below the driver's seat. Another and more weighty argument in favor of this location is that by moving the gear case farther away from the rear axle the propeller shaft is lengthened, and coincident with this, the angle which the shaft makes with the horizontal is materially reduced. The reduction in this means a nearer approach to a straight line drive.

On the ends of the propeller shaft are a pair of universal joints, one on each end. These remain unchanged, but the crosses have been fitted with roller bearings, which replace the ball bearings formerly used. The rear axle consists of but three pieces, the cast steel differential case, bolted at the ends to the



Two Sides of the Splendid Four-Cylinder Engine of Model 27 Contrasted

two flanges, to which the one-piece heavy gage tubing is welded. These axle tubes are flared from the spring saddles toward the steel gear case, giving the axle as a whole much strength and an imposing appearance. The power is transmitted by means of bevel gears, both axle ends and differential ends acting through jaw clutches. On each side of the balance gear is placed a universal joint consisting of a 14-toothed gear meshing within a similar internal gear. The teeth are rounded so as to allow some lateral movement as well as vertical motion. This constitutes the mechanical device which allows of the cambered rear axle as well as the camber and dishing of the wheels. The housing containing the bevel gears is a steel casting split 2 1-4 inches above the center line, instead of exactly central as before. The castings being of greater depth, have greater strength than before and more rigidity, also. Since the case is filled with oil for lubricating purposes, this new form of construction makes the differential case more nearly oil tight.



Steering Gear Partly Dissembled

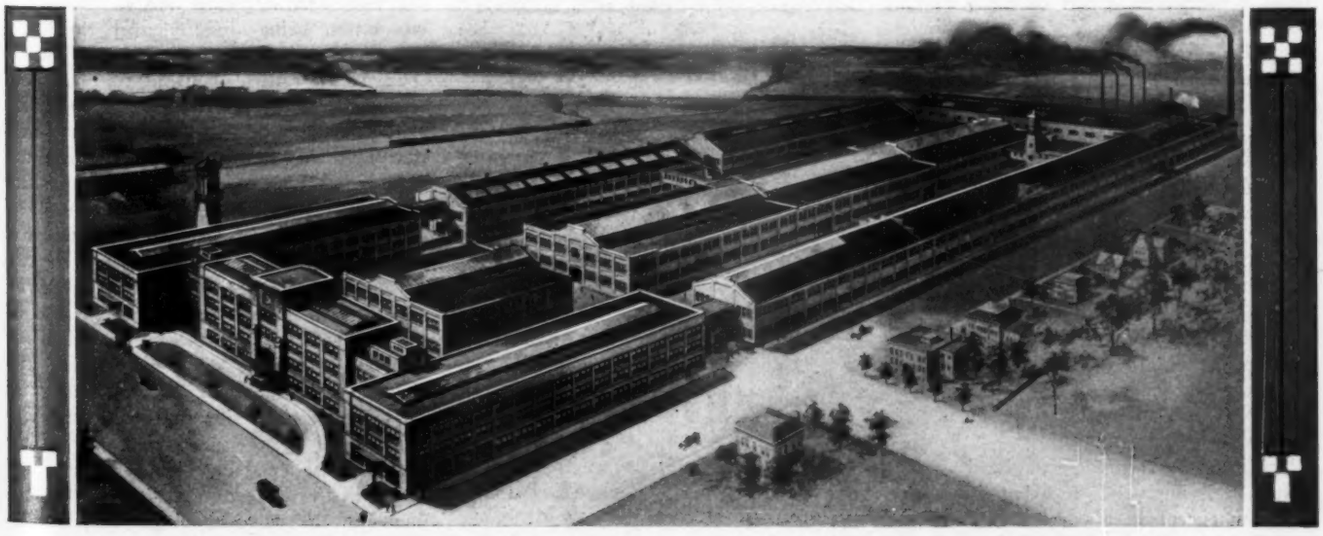
New Torque Rod an Improvement—Distance rods are attached to both frame and rear axle by means of joints of the ball and socket type, so that the car is propelled through these rods and not through the springs. A torque rod of new design takes all other possible strain off of the springs, which have nothing to do other than support the body and load. The rod is of channel section pressed steel instead of the former tube. This rod is attached to the frame at the forward end by cushion springs, which are completely enclosed in a neat tubular case.

In the front axle is seen a piece of work from the skilled mechanics on the other side of the water, this being an imported, solid, one-piece, drop forging, with the spring saddles forged integral. The section is the now generally adopted I-beam, and while the drop is not excessive, the bottom of the front axle is the lowest point on the car. Front wheels turn upon roller bearings, and the pivot point of the knuckles is supported on imported ball bearings of large size and special design. The cross rod is located behind the axle, where it is protected from road obstructions. Like the front axle, the springs which support the body and make life in it worth living, are imported from France, these bearing the trademark of Lemoine, Paris. In material they are of the very best that money will buy, this being an alloy steel, known as silico manganese, which possesses a number of physical and chemical properties, particularly fitting it for spring use. To improve the riding qualities of the car, if this be possible, the front springs have been increased in length by two inches and the rear side springs by four inches. The same flat shape is retained, as is the platform construction in the rear. In combination with this is the dropped frame, which gives a low center of gravity and large road clearance, too.

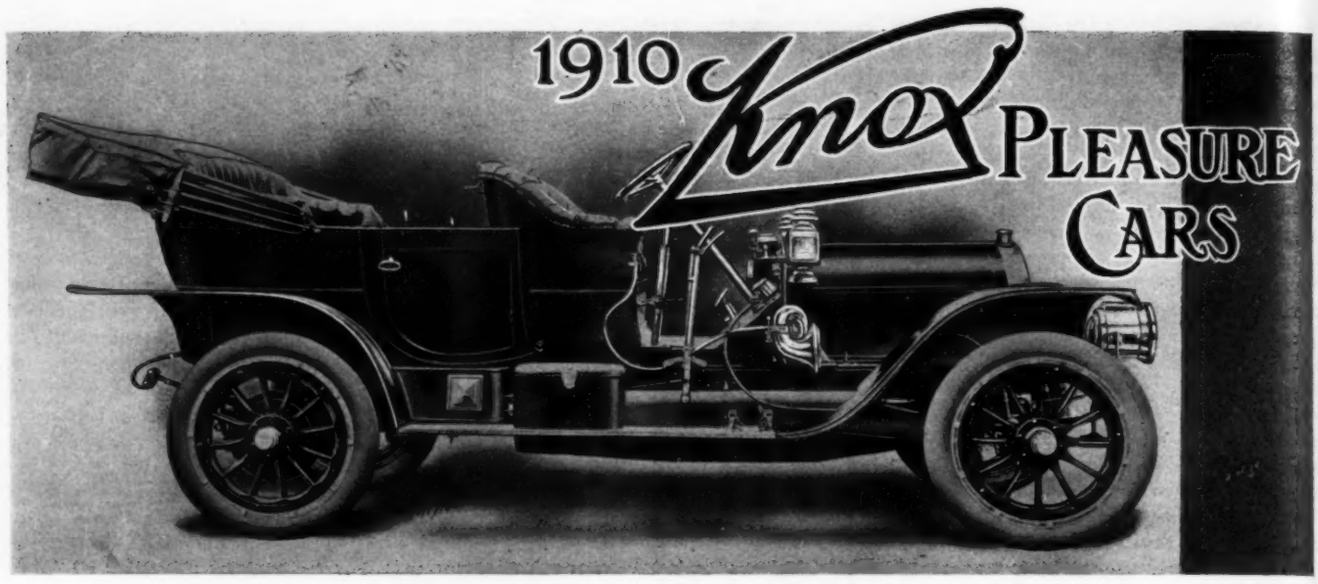
Unchanged is the term which applies to the frame also. This is still of cold rolled pressed steel, truss pattern, with the subframe for engine and transmission. The frame section is that of a channel, and the drop at the rear is 2 1-2 inches, while the overall length is 160 inches on Model 27, and 174 inches on Model 28. This corresponds to a wheelbase on the first of 122 inches and on the second of 136 inches.

Distinctive Peerless Body Types—Body types are unusually numerous, there being six to choose from in the case of both of the larger cars. These include the regular touring car, close-coupled body, roadster, pony tonneau, limousine and landaulet, all being built along the distinctive Peerless lines, namely, the combination of curves and straight lines, which never fails to please. The front fenders have been flattened a little and a wing added on the inside to prevent mud splashing up. This is carried back to the rear fenders, completely enclosing the under parts of the mechanism, and thus adding to the beauty of the car as a whole. Thirty-six inch wheels are continued, these being of the artillery type with dished spokes. The dished spoke is said to be the form which stands up best under side strains, while at the same time being stronger than the straight spoke form. Thirty-six by four inch tires will be used on the front wheels, which size is increased to five inch in the rear, where the work is more severe. Standard colors for the season will be: on touring cars and roadsters, maroon bodies and coach painter's red running gear; on all enclosed cars, maroon or blue. The closed cars will have upholstering of an imported cloth, known as Wulfing cloth, or, if desired, goatskin. All enclosed cars are fitted with an electric lighting outfit, consisting of a set of Fulmen, imported 60 ampere hour batteries, carried under one of the rear seats, the interior being wired for the tungsten lamps.

The prices vary with the body types, the touring body on Model 27 chassis being $4,300, and the same equipment on the six-cylinder chassis listing at $6,000. The little car has but one price, the same for both bodies, $4,500.



Bird's-Eye View of Peerless Factory As It Will Appear In a Few Months When Completed



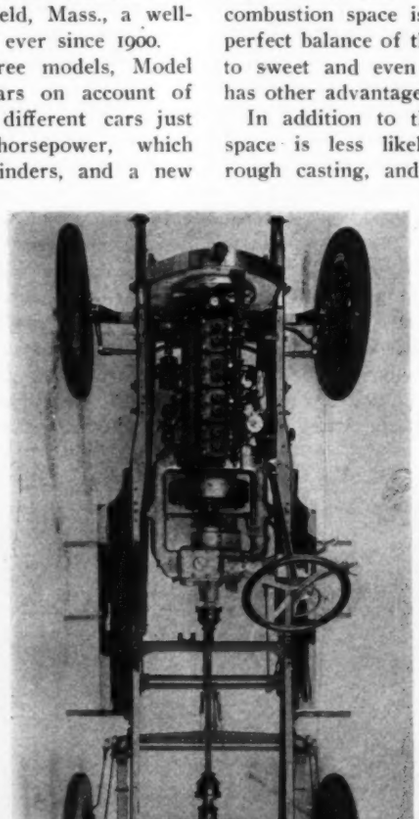
Model R, the Knox Leader for 1910, a Car Which Bristles with Good Features of a "Different" Nature

VERY recently—last week, in fact—there was described in these columns a car hailing from Massachusetts, the construction of which embodied the unit power plant, three point suspension, multiple disk clutch, and other advanced features. Strange to relate, another car which embodies these same features also comes from the Bay State, and still more strange is the fact that the two factories are within a very few miles of one another. The company whose output will be described here is the Knox Automobile Company, Springfield, Mass., a well-known concern, actively engaged in business ever since 1900.

For 1910 this concern will turn out three models, Model M, continued from 1909 and previous years on account of its continued successful career; and the different cars just added to the list, Model R, of 40 horsepower, which replaces Model O of last season, four cylinders, and a new "six," Model S, rated at 57 horsepower. All of the newcomers follow in a general way the construction of Model O, since the success of that model is taken as the best kind of proof that the form of construction is wholly right.

All Engines Are Water-Cooled—All Knox motors are now water-cooled, with valves located in the head, a location which has become very popular on the other side, being a noticeable feature of every winning car of this season. Model "R" cylinders are 5-inch bore, 4 3-4-inch stroke, rated at 38 horsepower, A. L. A. M. standard; Model "M" is 5 1-2-inch bore and 5 1-2-inch stroke, rated at 48 horsepower, A. L. A. M. Both have cylinders cast separately; each consists of two distinctive castings—the cylinder proper and the head. The water jacket of the cylinder is cast integral therewith, the water entrance being at the lowest point, and the outlet near the top on the right-hand side of the casting.

In the upper end of the cylinder casting a deep concentric groove is machined in which fits a copper asbestos gasket. Upon this is seated a corresponding concentric tongue formed on the bottom of the head which is firmly secured to the head by four bolts. It is impossible to bring these parts together except in a correct location and with a correct bearing. This joint, it should be noted, is not a water joint; in fact, there are no water joints in this construction which can occasion a leak into the cylinders.



How the Chassis Looks from Above

By this simple construction cylinders are secured symmetrical in form and perfectly uniform in cross section, which fact reduces to a minimum the liability of going out of round. Furthermore, they may be easily and accurately machined, the casting being entirely open at both top and bottom. The bottom of the head is also machined so that the entire surface of the combustion space is smooth and accurate in capacity, giving a perfect balance of the volumes of all cylinders, which contributes to sweet and even running. Machining the combustion space has other advantages, usually not taken up because of the cost.

In addition to this, the smooth surface of the combustion space is less likely to retain deposits of carbon than the rough casting, and the entire absence of sharp points, edges and roughness is supposed to be a preventive of premature ignition. The head is cast integral with its own independent water jacket, and the inlet and exhaust passages from the manifolds to the valves are cored in the head. The water spaces are large, the water circulating freely around all the parts mentioned as well as around both valve seats, the head being cast with a division through it horizontally, making two separate water spaces, the water circulation being directly over the valve seats, returning through the top water space to the return manifold, the water entering the lower one through a single U-shaped hollow casting. The "U" connection and the return water manifold are held in place by a double clamp and single bolt easy to connect and disconnect.

Flat Valves Given the Preference—After an unsatisfactory experience of two seasons with the conical seat for the valves, and after an exceedingly thorough trial of the flat seat, the latter has been adopted for use on all motors. The valves are mechanically operated by rockers and push rods on the right side of the motor. The upper ends of the push rods are in the form of hardened cup-shaped sockets and screw in the ends of the rods for adjustments of the valve openings; they are securely fastened by lock nuts and the outer

ends of the rockers with which they engage are ball shaped. Oil is placed in the pockets, preventing wear at this point. This construction and the positive adjustment of the valve rods, together with the use of spiral springs for taking up lost motion in the valve mechanism, has resulted in an exceptionally quiet engine, as well as one of great flexibility.

In the three point suspension, which was worked out by Knox in 1900 and used ever since, the two points are on the yoke surrounding the transmission and clutch, while the single point is located at the front end, where the weight is carried on a flexible trunnion hung to a bronze cross member of inverted channel section bolted to the side members of the frame. There are two other cross members with flared ends forming the gusset plates, both of which are hot riveted to the frame. The complete power plant is composed of three separate units, the motor, clutch and transmission, any one of which can be easily removed without disturbing the other. The whole power plant can be taken from the chassis by the removal of four bolts, one on each side of the yoke at the rear, and the trunnion bolts in the center of the forward transverse frame member, the uncoupling of the forward universal joint, muffler pipe, ignition wires, throttle and brake connections which, under ordinary circumstances, would require about 45 minutes. A change over last year consists of casting the crankcase and yoke separately, and bolting them together, a tongue and groove making for accurate assembling.

Details of the Aluminum Crankcase—All the crankcases are similar to Model "M," cast from aluminum and composed of four pieces—the case proper, the bottom of base, and the timing gear case and cover.

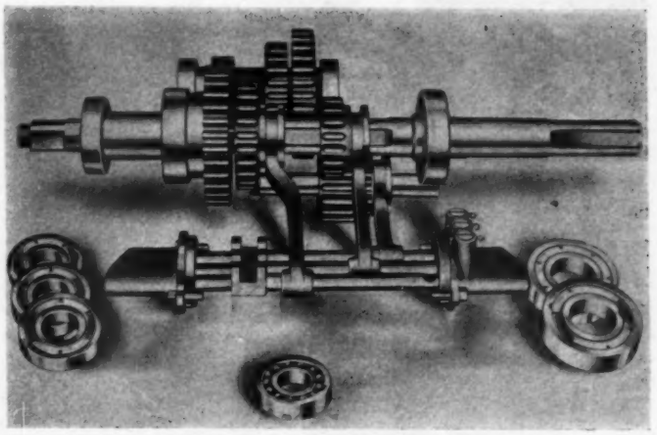
The shape is that of a rectangle, or perhaps more nearly a square, the crankcase proper forming the top and two sides, while the bottom is formed by the oil pan, which, however, is not very much on the pan order, being very flat and shallow. The bottom of the case is easily removed and acts chiefly as an oil reservoir. The aluminum in these castings is an alloy, obtained after months of testing and careful analysis, which, while sacrificing but little of the inherent lightness of aluminum, has ample strength for its purposes. The case proper has a massive extension cast on each side of the rear, which makes, when finished, one part of the forward joint for the side arms of the yoke. This casting forms the upper half of the crankcase or engine bed; the crankshaft and bearings being bolted to the lower side of it.

All crankshaft and connecting rod bearings are made of Parson's white brass, making it easy to replace worn bearings. With this metal it is impossible to injure the crankshaft in case of a hot bearing from lack of lubrication. The lower half of the crankcase can be taken off without disturbing the main bearings so that the engine could be run without it.

Connecting rods are made from drop forgings of nickel steel sufficiently heavy to stand the strains of a powerful motor. The heads are fastened with four bolts having contracting double lock nuts, a positive fastening, the four bolts making it practically impossible for the bearings to wear more on the ends than the center, which after long use would have a tendency to concave the wristpins.

A circulating pump of the centrifugal type is used on all motors, and is driven by spiral gears from the camshaft, located on the right side of the motor. A special spring connection is used, made to snap by should the pump become frozen or stopped by obstruction, thus avoiding any danger of damage to gears or shafts; the pump can also be entirely drained. The water is delivered from the pump through a tapered manifold to the lower end of each cylinder jacket, thence out of its upper end, through the outside connector, into the lower chamber of the head, then into the upper chamber and out of the right side, into the return manifold and to the top of the cellular radiator. The action of the radiator is assisted by a six-bladed fan, positively driven by a leather-covered chain belt.

Ignition on Models "M" and "R" is by Bosch high tension magneto and vibrating coil and timer—two complete systems with two sets of plugs. The magneto is located on the left side of the motor, and is driven from the timing-gear case. The ignition timer is driven by spiral gear from the oil pump shaft on the right side of the motor.

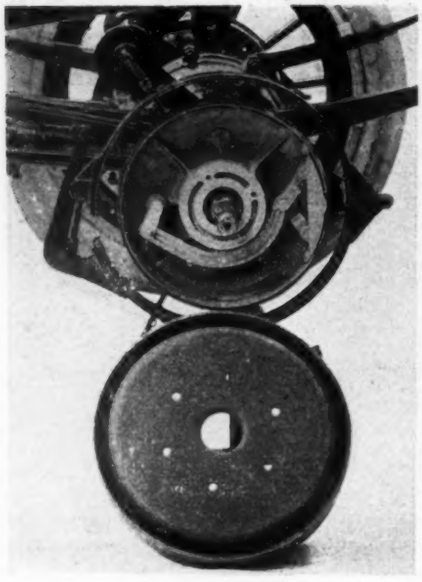


Heart of the Transmission Used in Models R and S

Great Stress Laid on Lubrication—The makers of this car say that one of the most important points necessary to the perfect working of machinery is proper and systematic lubrication at all times. The motor, being subjected to different variations in the speed and power required, makes it even more important that it be considered one of the most essential points in the perfect motor car. In all Knox motors what is known as the De Dion system is used, which has proved to be efficient, economical and satisfactory. With this system it is practically impossible to burn a bearing, the oil first being strained, and as all are lubricated from the inside, has a tendency to carry grit away from the bearings. The camshaft near the center drives a downwardly projecting shaft for the rotary gear pump, which is also fitted with a spring connection to snap should it become clogged.

The lower part of the crankcase forms an oil reservoir from which, through a strainer, lubricant is drawn by the gear-driven pump and conveyed through an oil pipe on the left side of the case, from which are pipes leading to the various bearings of the crank- and camshaft. In each connecting rod is drilled an oil passage, the opening of which registers once in every revolution with a similar opening in the crankpin, so that the wristpin is not only lubricated by the oil distributed centrifugally but by direct pressure through the connecting rod. A pressure gauge, located in the sloping footboard, registers the amount of pressure, which is varied at will by means of an adjustable by-pass located on the left side. The oil screen is easily detached by a socket wrench furnished with each car. The filler cap and petcock showing oil level are also on the left side. With this sys-

Knox Three-Plate Clutch Dissembled, Showing Cork Inserts



Rear Hub Brakes and Brake Drum

tem a gallon of oil will last for over 500 miles of ordinary running.

Transmission Three Speed Selective; Compactness a Feature—On Models R and S, the transmission used is of a new design, affording three speeds forward and reverse, operated along selective lines. A special feature is its compactness and the elimination of the use of a troublesome hollow shaft. The shafts and gears are made from nickel steel of large size, mounted on Hess-Bright and F. & S. imported ball bearings; the short shaft is only five inches between bearings, thus avoiding any liability of springing even under the most severe abuse. A transmission clutch brake is used to avoid clashing the gears in shifting from one speed to another.

Not the least of the good features with which this car fairly bristles is the straight line drive. This is obtained by setting the two rear supporting points of the power plant down low so that a straight line is described from the front end of the crankshaft to the rear axle, except the provision made back of the transmission for the drop at that end caused by the weight of the body and passengers. Throughout the car the very best of material is utilized, chrome nickel, nickel and other special steels, as well as high-class bearings, being used freely.

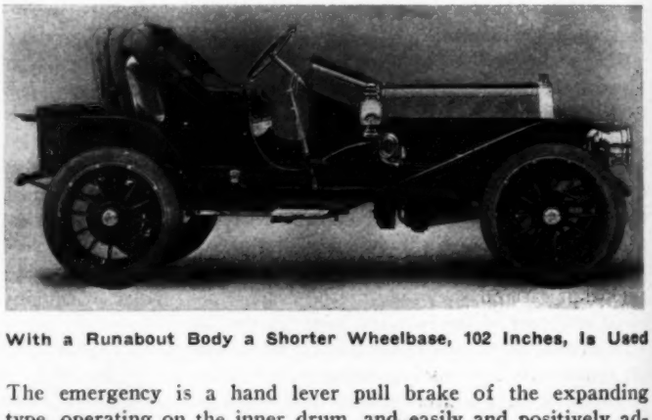
Changed is the steering gear, the one to be employed in the future being of the irreversible type as before, but operated by a double right and left hand thread with a rocker action at the base, which works the steering lever. The crossrod is placed at the rear of the front axle. The steering wheels are covered with hard rubber and are of large diameter, 18 and 19 inch being used.

End View of "R" Motor, Gear Cover Removed

Front axle is of high carbon steel, drop-forged to shape, which is the now popular I beam. The yokes are of the Elliott type with adjustable roller bearings. Massive steering knuckles formed by hand from nickel steel billets make for safety. The rear axle is of the semi-floating style with 1 1-2-inch shafts of nickel steel. On the axle double race ball bearings are used to give greater bearing contact and take up end thrust as well. Four of these are used on the axle and two in the pinion housing.

Alloy Steel Frame of Large Section—Frames are made of a cold-pressed alloy steel, admirably suited to the purpose and of large sectional area. Besides the front member which carries the forward trunnion of the power plant, there are but two cross members. Both of these are of steel and braced with heavy gusset plates where they join the main frame. Special efforts have been made to have the springing of the Knox cars as nearly perfect as human endeavor can make it. To this end semi-elliptic fronts and three-quarter elliptic rear springs are used. The front springs are shackled at the rear above the spring so that the shackles work in compression. The lower half of the rear spring is positively attached to brackets in front, while the upper half is bolted to a rigid gusset plate.

Realizing the importance of durable and reliable brakes, considerable experimenting has been done to have them first class in type as well as workmanship and material. One special feature is the construction of the drums, same being pressed from one piece of sheet steel, with an air space between the outer and inner drum, avoiding any possibility of either brake dragging, due to the expansion of the drum from heat when the other is applied. The service brake is a contracting band on the outside of the double drum, operated by foot pedal; the band is so fastened that it is pliable and free from rattle, and held free of the drums by springs. Adjustment is by turnbuckle, easy of access.



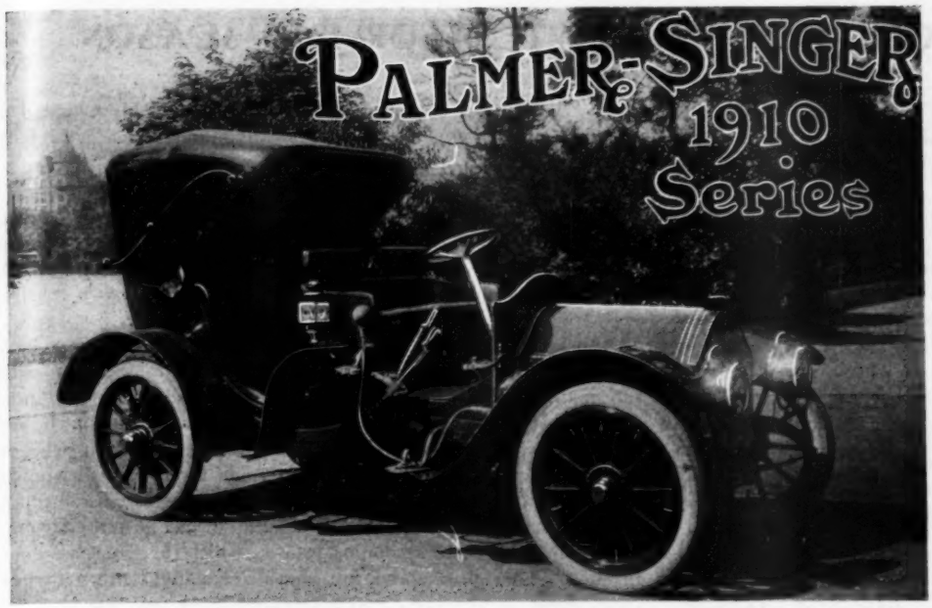
With a Runabout Body a Shorter Wheelbase, 102 Inches, Is Used

The emergency is a hand lever pull brake of the expanding type, operating on the inner drum, and easily and positively adjusted. Brake shoes and bands are lined with thermoid, and have perfect working equalizers; all rods and connections are free from rattle.

Model R, with standard equipment, including about $700 worth of parts ordinarily listed as extras, sells for $3,250. With different types of body, however, the price varies from $3,050 up to $4,000. The price of Model M remains the same at about $5,000. Specifications and prices for the new "six," Model S, have not yet been given out.

MEAN GAS SPEED IN MANIFOLDS AND PORTS

The loss due to friction of gas against walls is approximately as the square of the speed; since the loss of ability of a motor is materially affected by this friction, and since about ten per cent. of the power will be lost when the speed of the gas is about 4,000 feet per minute, the effect of a very high gas speed will be marked. While it is true that in motors of some repute the speed of the gas is maximum at 15,000 feet per minute, in steam practice the speed is kept down to 6,000 feet per minute, and in the better class of automobile motor designs, it is the aim to hold the gas speed down to about 9,000 feet per minute. Much depends upon the shape of the cams as well as upon the area of the ports, and as a rule it is better to so shape the cams that they will do the work properly, than it is to have large manifolds in conjunction with cams that are not well suited to the purpose.



P. & S. Town and Country Victoria, an Exclusive Model of Unique Design

IN all likelihood, there are few concerns which are forced into the manufacture of any one type or style of car, yet that is the peculiar position in which the Palmer & Singer Manufacturing Company, New York City, finds itself to-day. The Six-Sixty car built by this firm, has been so popular and such a good seller that owners of these cars, desiring a smaller and lower powered machine, have practically forced the company to build one for them. Not only did these enthusiastic adherents of P. & S. work, design, and material, force upon the concern a new type of car, but they contracted for a very large number of the new cars, before anything more had been done upon them than the decision to make a different car.

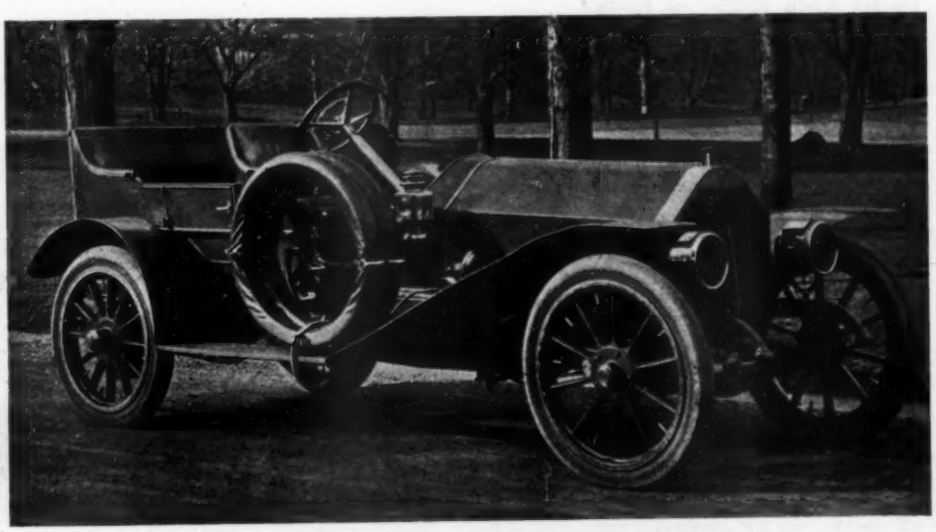
This condition necessitated a new and large factory, modern in every respect. So, land was purchased in Long Island City, at Webster, Second, and Third avenues, and the construction of the new shop started. This factory will be of fireproof construction, steel, brick, concrete, and glass only entering into its makeup. The edifice will be three stories in height, with sufficient floor space to accommodate 1,000 workmen, although, at first, many less than this will be transferred from the older buildings. In the selection and arrangement of the machinery which will form the greater part of the new equipment, much care has been exercised to have the result as nearly perfect as is possible. The labor-saving machinery is very complete and well-planned.

The present line of cars consists of but two, which are, however, fitted with numerous body style fitting them to the needs of every class of automobile enthusiast. These are the Four-Forty and the Six-Sixty. In the series for 1910 (the Palmer-Singer Company have no models, the various changes which mark the successive years being denoted by the series of cars going through the shop) two more cars are found. These are a Six-Forty and a Four-Fifty.

The former is the car which owners and friends have forced the company into the production of, while the latter is put out in response to a large demand for a four-cylinder machine of the very highest practicable power. Like their predecessors, these cars will have the tried and proven features which have made the name of Palmer-Singer famous in connection with automobiles of the highest type. Although it is not generally known, this company takes rank among the pioneer car builders, since it was among the very first to use a number of features which are now the standard. Some of these are: Four-speed transmission, which the majority of builders will use for the first time in 1910, but which this firm has always used; annular ball bearings throughout the car; universal joints on all steering connections; liberal use of nickel steel for axles and elsewhere; multiple disc clutch running in an oil bath; and many other features.

Model Four-Forty is powered with a four-cylinder engine, of 4 1-4-inch bore and 4 1-2-inch stroke. Ignition is by high-tension magneto, Bosch being the usual equipment. The transmission is four-speed selective, and with the engine is located on a subframe. To add to the strength of the main frame and at the same time preserve its light weight, the latter is made with longitudinal trusses. Between the engine and transmission is located the clutch, of the multiple disc variety, running in a bath of oil, which insures easy engagement. In addition to the usual full brake equipment, a hill pawl is fitted, which is dropped into engagement by the driver, using a small and inconspicuous hand lever. This prevents the car backing up, so that if the brakes should fail and the engine stop, when ascending a steep hill, there is no danger to the occupants of the car, since the hill pawl would hold it from backing down. As a two-passenger runabout, this chassis has a 107-inch wheelbase, and is fitted with 34 by 4-inch tires all around.

The Six-Sixty differs little from the smaller car, except for power plant and wheelbase length, as would be necessitated by longer bodies. The motor has a 4 7-8-inch bore and a 5 1-2-inch stroke, the length of the stroke relative to the bore making for slow speed and consequently quieter running. Wheel diameters are increased to 36 inches, while the front tire sizes remain at 4 inch. The rears, however, are increased to 4 1-4 inch to care for the slightly greater weight and carrying capacity. The wheelbase of 126 inches allows of any desired form of body, although the company fits a three-passenger runabout usually.



Baby Tonneau Body on Six-Sixty Chassis, 1910 Series

FRANKLIN AUTOMOBILES PERFECTED FOR 1910 SEASON

IMPROVEMENT being the order of the day, it is not strange to find the progressive H. H. Franklin Manufacturing Company of Syracuse, N. Y., on the spot with a few minor yet noteworthy additions to the well-known Franklin air-cooled cars. The improvements take the form of slight changes in the motor cooling system as mentioned briefly in the July 22 issue of THE AUTOMOBILE, in the ignition control, and a big improvement in the matter of wheel and tire sizes. This latter is along the line of modern changes which go toward making cars ride easier, and is made particularly noticeable in this case, since the cars already are very light in weight so that the old wheels are large, and tires ample for the weight carried. However, it has been fairly proven that larger wheels make a car ride easier, so the 1910 Franklins will have larger wheels. These larger wheels are also easier on tires, so that the increased wheel size coupled with larger tire diameters should eliminate all tire trouble.

A list of cars to be made and sold for 1910 would duplicate a similar list for 1909, since all models are continued, including: Model H, a six-cylinder 42-horsepower chassis, made with seven-passenger touring, close coupled, double rumble seat runabout, and limousine bodies; Model D, a four-cylinder smaller car of 28 horsepower, and fitted with five-passenger touring, close coupled, double rumble seated runabout, landaulet, and limousine bodies; and a high-grade runabout chassis, Model G, powered with a four-cylinder 18-horsepower engine, and equipped with the following body types: Four-passenger touring, six-passenger town, runabout with hamper, single rumble seat runabout, and double rumble seated runabout.

By far the most important of the changes has to do with the air-cooling arrangement. Formerly, the engine cylinders were cooled by the direct impingement of air upon thin sheet metal flanges radiating from the cylinder castings, the latter being machined on the outside to advance the cooling action and to allow of the flanges fitting closer. In this system, the air was forced against the flanges by means of the forwardly located fan, bevel gear driven from the front end of the crankshaft. The flywheel also assisted in moving the air past the cylinders at a high velocity, the clutch being very small, and the space between the exterior of the clutch case and the flywheel rim being made up of a series of spokes which have a fan blade shape. The newer way dispenses with the front fan, the flywheel spokes alone being used to move the air, but to do this most efficiently, a sheet metal casing has been placed around the cylinders and flanges, with very little clearance between its internal diameter and the outside size of the flanges. This casing is open at the bottom, and at the top the whole number of casings have been connected together with a diaphragm, which is carried back to the flywheel fan. The whole is made into an air-tight casing, except the openings left at the bottom for the admission of the air, and at the rear end, for the emission.

Another 1910 improvement is the elimination of the spark advance lever, which makes the ignition system much simpler than otherwise, as well as reducing the control to its simplest terms. In this manner, the judgment of the operator or driver as to the best spark position is done away with, and better results are obtained both as to maximum speed and power at all speeds. In the ignition group, the battery and coil are done away with. Dependence is placed wholly upon the reliable magneto, a Bosch high-tension, and the complication and added weight of the extra, in fact superfluous, system is saved.

Tire sizes have been much increased on all models. Last year, Model H carried 36 by 4 front tires and 36 by 4 1-2 rears, which have been changed to 36 by 4 1-2 tires in the front and the new odd size, 37 by 5, in the rear. Considering that the weight of this model complete does not exceed 2,700 pounds with touring body, the tires provided are unusually large.

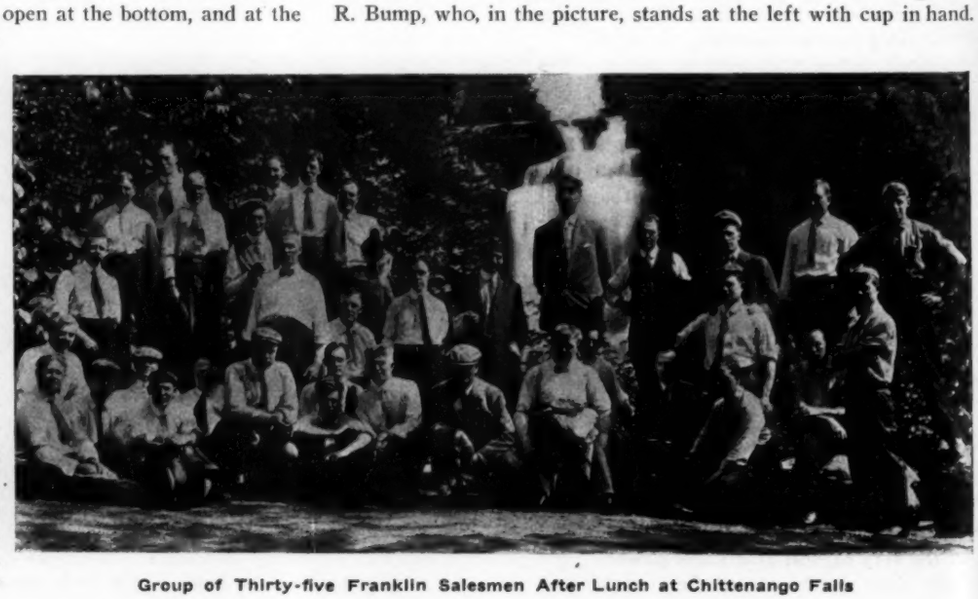
Model D tires are increased from 36 by 3 1-2 front and 36 by 4 rear to 36 by 4 front and 36 by 4 1-2-inch rear. So, too, with the smaller car, all tire sizes have been increased by one-half inch.

Axles, springs, and frame remain the same, particularly the frame, which is of laminated wood. In this construction, selected second growth white ash is used, placed in three vertical laminations. In construction, these laminations are screwed and glued together, after which the whole is kiln dried, despite the previous kiln drying and seasoning process which the wood has gone through. The upper and lower edges are bound with a thinner strip which prevents the entrance of moisture into the grain of the wood and its consequent destruction. This frame is claimed to be lighter than the more usual steel frame and stronger as well. Certainly it yields to the rider, in the car so equipped, the desirable resiliency. As to springs, the full elliptic type, attached to the underside of the axles, which has long been a Franklin feature, will be retained without change.

All other features of Franklin cars in previous years have been retained, since they have survived the test of another year's daily service with complete satisfaction.

FRANKLIN SALESMEN CONFERENCE AND TOUR

When the branch managers, traveling salesmen, and factory representatives of the Franklin company held their recent conference at the big Syracuse factory, one day was spent in an outing which included a drive in the new 1910 models over some of the worst hills and roads to be found in Central New York. The drive, 75 miles in extent, ended at Chittenango Falls, where lunch was served on the ledge at the top of the falls, and just showing in the background of the picture. The long ride over bad roads served to try out the cars in an excellent manner, and the way in which they stood up was evidence that the new features incorporated in these models are right. The conference of the week was held under the direction of Sales Manager F. R. Bump, who, in the picture, stands at the left with cup in hand.



Group of Thirty-five Franklin Salesmen After Lunch at Chittenango Falls

NO MOTOR VEHICLE COMMISSIONER FOR CONNECTICUT

HARTFORD, CONN., July 26—The Senate of the Connecticut State Legislature, which is still in session, has without a doubt put away the commissioner of motor vehicles provision of the new State law. When the original bill was introduced, provision was made for the creation of the office of Commissioner of Motor Vehicles, entirely separate and with ample provision for absolute control of the situation, as far as the State was concerned. But this feature was a bone of contention, and a compromise was effected by providing for such an office but still leaving the control of matters with the Secretary of State. Like the bill proper it has dragged along until no one really cares a great deal anyway. But the machine has got to work, and is responsible for putting the commissioner bill to sleep for keeps. United States Senator Morgan G. Bulkeley, a former Governor of the State, was at the Capitol when the bill came up for action in the Senate. That was one side of the situation, and former Governor George P. McLean was on the other. The McLean faction favored the bill inasmuch as it was proposed to put in office George I. Allen, a former postmaster of Middletown. Now, then, it is generally assumed that Secretary of State Rogers is a Bulkeley faction man, which was obviously opposed to the bill. As might be expected, a lively time ensued. Senator Peck was in favor of having the work done in the Secretary of State's office rather than by a special commissioner, which latter, involving the installation of the commissioner and incidental office force would be a waste of good money. Without going into details, the measure was put to sleep by a big vote, so at all events it is very doubtful if there will be a commissioner of motor vehicles provided for at this session of the State Legislature. Both factions are headed by representative Republican leaders. It is intimated that an attempt will be made to prevent an appropriation being made for the Secretary's of State's office with which to control the motoring situation, as this would be such an easy way out of the difficulty and one that might be used.

OWNER NOT A CHAUFFEUR IN NEW YORK

ALBANY, N. Y., July 26—Automobile owners in general will be interested in knowing the text of the opinion of Attorney General Edward R. O'Malley on the subject of chauffeurs' licenses, and whether an owner or member of his family must take out a chauffeur's license to operate a car. The Attorney General's opinion was delivered in response to a request from Secretary of State Samuel S. Koenig, for information on the subject, and is as follows:

HON SAMUEL S. KOENIG,
Secretary of State, Albany, New York.

In answer to your inquiry of July 13,, as to whether or not it is necessary for various members of a family who own an automobile to procure a chauffeur's license in the event that different members of the family operate the automobile, I am of the opinion that such license is not necessary.

There is no provision of law that I am aware of requiring the owner of a motor car or any member of his family to procure a chauffeur's license to run such machine.

Subdivision 5 of section 280, of Chapter 30 of the Consolidated Laws defines the word "chauffeur" as follows: "Shall mean any person operating a motor vehicle as mechanic, employee or for hire."

Section 282 requires the owner to file in the Secretary of State's office a statement of his name and address, with a brief description of the vehicle to be registered, etc.

Section 283 provides for the registration of such motor vehicle. Section 302 provides that every person desiring to operate a motor vehicle as a chauffeur shall file in the office of the Secretary of State a statement, which shall include his name and address and the trade name and motive power of the motor vehicle he is to operate. Upon filing such statement, the Secretary of State shall issue to the chauffeur a badge, as provided in section 304.

Section 306 provides that no person shall operate a motor vehicle as a chauffeur upon the public highways, unless such person shall have complied in all respects with the requirements of the four preceding sections.

There is no requirement that the owner of a motor vehicle shall procure a license to run the same, nor is there any requirement that any other person shall do so, unless he proposes to become a chauffeur or a person conducting an automobile as an employee for hire or wages.

EDWARD R. O'MALLEY, Attorney General.

TOLEDO SPEEDERS PUT "ON PROBATION"

TOLEDO, O., July 26—Imagine bankers, trust officials and others equally prominent in business and social circles making weekly reports to a probation officer, like small boys caught swiping bananas from a push cart. That is the latest idea of Police Judge Austin, of this city, before whom all speeders must appear. He found that fines had little effect, and tried the probation system. The Police Department has organized a motorcycle corps.

Susquehanna River Bridge Rebuilt—The bridge across the Susquehanna River at Conowingo, which was destroyed by fire in June, 1907, will be opened for public traffic September 1. This bridge is the connecting link of the Maryland State road north and south of the Susquehanna River.

STATE AND LOCAL LAW IN PENNSYLVANIA

SWARTHMORE, PA., July 26—"Does a borough ordinance take precedence over the State law?" is a question which is now agitating the motorists of this country. President J. H. Weeks, of the Automobile Club of Delaware County, says that it doesn't. Squire Burnley, reinforced by the vast legal knowledge of the borough solicitor, avers that it does. The hullabaloo was raised by the arrest, at about eight o'clock on July 20, of W. R. Taylor, a member of the club, on the charge of driving his car without lights. The defendant does not deny the charge, but the club, through President Weeks, who has taken up the matter, asked for the dismissal of the proceedings on the ground that Section 12 of the new State law says vehicles must carry lights "from one hour after sunset until one hour before sunrise," and that as the sun did not set till 7.26 on the night in question, the defendant was still within the limit when arbitrarily arrested. The borough solicitor wanted to fine Mr. Taylor, and then remit the fine, charging the defendant with the costs alone, but the defense refused to accept this solution of the problem, preferring to pay fine and costs in order to have a groundwork for an appeal. The club and President Weeks are prepared to carry the case up to the Supreme Court on account of the principle involved. If every picayune borough and township ordinance is to be allowed to take precedence over the State law, which was carefully worded to prevent that very thing, President Weeks thinks the automobilists of Pennsylvania should know it as soon as possible.

OHIO PASSES 20,000 REGISTRATION MARK

COLUMBUS, O., July 26—State Registrar of Automobiles Fred. H. Caley on Friday, July 23, issued the twenty thousandth license to operate an automobile in Ohio. The number was granted to A. R. Davis, 2223 West Thirty-ninth street, Cleveland, an agent for the Studebaker line. Counting a population of 4,500,000 in the State, the use of 20,000 automobiles means there is one car to every 225 inhabitants.

According to a decision rendered by Attorney General Denman, all automobile tags must be plainly and conspicuously displayed. The ruling was given upon the request of the State Automobile Department, which has received numerous complaints of tags being hidden behind springs and swung parallel with the body of the car. Under the ruling these practices must be stopped. As the primary object of the law is identification nothing must be done to prevent an easy reading of the number of all tags. Such pernicious practices as oiling the number tags so that the rising dust will adhere to the oil, cover the surface, and thus prevent identification, will be stopped.

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BLERIOT'S PASSAGE OF THE CHANNEL

The French journals have one and all worked themselves into a fine Gallic frenzy over M. Bleriot's very successful flight, and even the once unemotional English betray considerable excitement. Of course, Bleriot is a Frenchman, and, equally of course, England's pose of insular superiority has been badly damaged of late. Still none can doubt that this first passage of the English Channel by aeroplane is an event long to be remembered.

All scientific men have seen for some time that M. Bleriot's feat was perfectly practicable. The distance was a trifle, but 23 miles; and, although it had never been done, there was every reason to suppose that flying over water would prove easier than flying over land, as there would be none of the sudden and irregular air currents always set up by trees and tall buildings. The French government had volunteered to send a body-guard of swift torpedo boats. The only real difficulties to be anticipated were at the start and finish, where the steep cliffs might cause aerial disturbances. Wilbur Wright said that he could have done it long ago, and he is not a man given to vain talk. When prizes were offered and half a dozen aviators gathered to attempt the feat, it was only a question of time when one or the other of them would get across.

Nor need M. Bleriot's fame suffer by more mature consideration. The flight was not one to be accomplished by a novice. To attempt it required admirable courage and daring, and to succeed the knowledge and experience only to be attained by years of study, mingled with the dash and the enthusiasm of the born adventurer. M. Bleriot possesses all these qualities, and he has honestly won his fame. Meanwhile M. Latham should not be forgotten. He, too, had the courage and the enthusiasm, and he at least demonstrated that the aviator need come to no harm if his machine should stop in mid-channel.

One phase of the matter which has caused a needless flurry is the political effect. According to some, the Channel is narrower than in Napoleon's day; others claim that it has been obliterated, and that England now is on the Continent. All this is as unsubstantial as the German war balloon scare. There is no immediate possibility that aeroplanes will be made to carry more than two or three persons, and any extensive cargo of guns or explosives is out of the question. Some of these jingoists might work off a little energy in figuring the cost of equipping a fair-sized army with aeroplanes, at a thousand dollars apiece; not to mention the detail of training the necessary number of operators. The results will make the present Dreadnought craze look mild and innocuous in comparison.

The greatest importance of M. Bleriot's flight is not on the scientific, nor yet on the political side, but rather in its effect on the public mind. Hitherto people at large have looked on the aeroplane as a toy; interesting, and unquestionably able to fly, but incapable of any directed or useful effort. It needed the shock of just such an exploit to wake them to the possibilities of mechanical flight.

TALK OF GEARLESS CAR ON THE DECLINE

Not so very far back into automobile history there was much talk of the elimination of the transmission, this coming coincident with the rise of the six-cylinder motor. Now that the latter may be fairly said to have come into its own there is little heard about the lack of a necessity for speed changing devices, as was the case then. Rather, the inclination is in the other direction, for it is a noticeable fact that the number and quality of the users of four-speed gear sets increase, slowly, it is true, but nevertheless surely enough to be noticeable. With the advent of the low powered and low priced car, this question of number of speed changes will doubtless be renewed, for, desirable as a four-speed transmission would be on a car of this type, the additional weight, cost and complication over the three or even two speed gear would make its use out of the question.

Some light will be shed on this vexing problem by the present tendency in motor design, if continued along similar lines. At present there is a very pronounced leaning toward the long stroke motor. This would seem to be a high power at slow speed prime mover, which would have its effect on the transmission question. If the engine speed is slow and the gear reduction the same as is general now, there would be little use for numerous gear changes. In that case the probable outcome would be the use of a two speed sliding gear transmission. To consider this for a moment, it would be small, compact, hence easy and cheap to assemble, easy to repair or replace, and equally easy to keep in order. Aside from a large saving in weight, due not alone to the transmission, but also to the control, there would be an equally large economy in manufacturing cost, this undoubtedly redounding to the prospective purchaser's benefit.

PREPARATIONS FOR THE FAIRMOUNT PARK "200"

PHILADELPHIA, July 26—The Quaker City Motor Club is out with its prospectus of the second annual renewal of the 200-mile Fairmount Park stock chassis race, which, by reason of there being no Vanderbilt contest this year, promises to be the biggest race of the fall in the East. The club has decided to hang up $5,000 in cash, to be divided possibly as follows: 50 per cent. to the winer, 25 per cent. to second, 15 per cent. to third, and 10 per cent to fourth. Should any winner prefer to have a cup or plaque of equal value, he will be accommodated.

The proceeds will go to charity, the club, out of the entrance fees, paying all expenses of promoting and advertising, besides providing the prize money, preparing, oiling, and guarding the course, repairing any damage to the roads, etc. A committee of patrons and patronesses, to be composed of the most brilliant social lights of the Quaker City, will have complete charge of the grand stands, parking places, and all points of vantage whence the race can be viewed. Already this end of the affair is shaping up as a huge benefit, to boost the anti-tuberculosis fund and to aid other charities, and tentative plans look to so widening the scope of the event as to give the half million or more of spectators an opportunity to help along the worthy object.

It is hardly likely now that there will be any room for foreign cars, and that the same conditions as obtained last year will prevail. An effort will be made to increase the number of starters from 16 to 20 that a representative American field may line up for the word next October. Last year's field included two Locomobiles, two Loziers, and one each of Acme, Peerless, Pullman, Thomas, Studebaker, Chadwick, Stoddard-Dayton, Apperson, American Locomotive, Palmer and Singer, Pennsylvania, and Maxwell. Several cars not in the line-up last year are already assured. It begins to look as if there would again be a "waiting list." Certainly, with the fairest and best-policed course in the country, and an unexcelled management, the Quakers deserve well of the American manufacturers.

PLANS FOR LONG ISLAND DERBY TAKING FORM

W. J. Morgan, now the president of the Motor Contest Association, is organizing a road race for Long Island this fall, and says he has been assured of sufficient entries to make the event a success. The proposed circuit is between Riverhead and Mattituck, about twenty-two miles in length. The roads in the main are excellent, and there are but two sharp turns, dividing two ten-mile straightaways. Mr. Morgan thinks it will prove the fastest course in the country. The Suffolk county supervisors have been consulted and their consent secured. The date is to be September 21, so that the race will be an added attraction for the second annual "tour around Long Island." The policing of the course will probably be in charge of the Federation of American Motorcyclists. Owing to the distance of the course from New York, it is not expected that the crowd will be as unruly as at the Vanderbilt races. The course, however, is easily accessible by motor boat, as well as by automobile and train, and is said to possess many vantage points of observation for the sport-loving spectator.

The contest will be limited to cars selling between $2,500 and $5,000, and these will be divided into four classes, to run at different distances. The present plan calls for 100 miles by the small cars, 150 by the third class, 200 by the second class, and 250 by the big ones. Most of the 1910 models will be out by the time set, and it is expected that the entries will be largely recruited among these. The event will be known as the Long Island Derby. A definite announcement of the exact distances, the prizes, etc., is expected soon.

ATLANTIC CITY WANTS AN AUTODROME

ATLANTIC CITY, N. J., July 26—Spurred on by the success which seems to be in store for the Indianapolis and Atlanta projects, a company has been formed here to build a two-mile automobile track at Chelsea Heights, which in general appointments will excel either of those motordromes. The new company, at the head of which is Commodore Louis Kuehnle, of the Atlantic City Yacht Club, proposes to spend $800,000 in acquiring and filling in the ground, and $150,000 in building the track.

One hundred and fifty feet wide on the stretches, and one hundred and twenty-five feet wide on the banked turns, the track will have a concrete foundation to give it stability and permanence. A grand stand seating 25,000 people will also be erected. A huge garage, a club house, hotel, and chauffeur's quarters are also included in the plans. The property includes 526 acres, and work will be begun in time for an opening meet at the beginning of summer season at this popular seaside resort.

PREPARATIONS FOR WASHINGTON-BOSTON RUN

WASHINGTON, D. C., July 26—The rules governing the running of the Frank A. Munsey reliability contest from this city to Boston and return have been issued and given wide circulation. They are patterned after those governing this year's Glidden Tour. Entries have been received as follows: Chalmers-Detroit Motor Company, Chalmers-Detroit; Hudson Motor Company, Hudson "20"; Olds Motor Works, through Philadelphia branch, six-cylinder Oldsmobile; Jackson Automobile Company, through the New York branch, Jackson "40"; the Motor Company, Philadelphia, Premier; F. Windsor Eveland, Philadelphia, Stevens-Duryea; Charles E. Miller & Bro., Ford.

The Chalmers-Detroit pathfinding car has arrived in Washington, and will be sent out to blaze the route within the next few days. This battle-scarred hero, has jus returned from its strenuous trip from Denver to Mexico City, and it is attracting much attention on the streets of Washington. Carl Schnorr will drive the car on the pathfinding trip.

A number of well-known drivers have already been engaged to pilot cars in the Munsey contest. Among them are Tom Berger, who will be at the wheel of the big six-cylinder Oldsmobile; Ray McNamara will drive the Premier, while Frank Kramer, the well-known bicycle champion, will handle the Jackson.

CHEVROLET AND STRANG BREAK RECORDS

LANSING, MICH., July 27—At the Grand Rapids and Lansing races last Friday and Saturday, Louis Chevrolet and Lewis Strang carried off the honors. At Grand Rapids, Chevrolet, driving a Buick, broke the world's record for from ten to eighty miles on a circular track, covering fifty miles in 51:22. Strang's performance at Springfield the Saturday before, of 52:48, was the best previous record. At Lansing, Strang won the fifty-mile race with a 30-horsepower Buick in 52:19.

RICHFIELD SPRINGS CLIMB POSTPONED

The Richfield Springs, N. Y., hill climb, under the auspices of The Earlington, has been postponed from July 31 to August 7, on account of the conflict of the former date with the 24-hour race at Brighton Beach. The change was made necessary by the desire of a number of manufacturers to enter their best cars and drivers for both events.

Milwaukee Will Adopt Chicago's Plans for dust laying on its streets, boulevards and park roads, and will probably build a plant for making its own oil mixtures.

A. A. A. SOUNDS WARNING AGAINST RECKLESS DRIVING

DO automobilists understand the rules of the road? This question has been brought prominently before many automobile clubs within the last few days in view of the increasing number of accidents, some resulting in fatalities both to motorists and other users of the highway.

In many cases these accidents have been due either to ignorance of the ordinary rules of the road or to the supreme carelessness of automobile drivers in ignoring the simple regulations that conduce to safety. So flagrant has this tendency to recklessness become, in spite of the efforts being made by the leading clubs throughout the country to cooperate with city and county officials in observing the legal regulations, that a word of warning has been sounded by President Lewis R. Speare of the American Automobile Association, and his endeavors to control the present wave of recklessness have been seconded by the other officers and chairmen of the various A. A. A. boards.

"Many of the recent deplorable accidents might have been avoided by the observance of the simple road rules and sane driving," said President Speare. "There is also too much recklessness in crossing railroad and surface car lines, as well as passing electric cars in city streets when passengers are alighting. Again, many autoists in descending hills, even if not very long or steep ones, persist in keeping practically the full power of their motor on. If more motorists would throttle down the engine, or totally disengage it while descending a hill, the number of accidents from this source would be materially decreased. When the motorist suddenly finds himself in a tight place while descending a hill under full power or even partially so, and he loses control of his car, it is the most natural thing in the world to attribute the difficulty to the failure of the steering gear to work properly, whereas there would probably have been no trouble at all were the machine allowed to coast down gradually under its own momentum."

Some of the ordinary rules of the road which every motorist ought to know by heart and invariably observe are:

1. Keep to the right when overtaken by a passing automobile or other vehicle going in the same direction.

2. Keep to the left when about to pass another vehicle going in the same direction; in other words, the automobilist should pass another vehicle going in the same direction on the left-hand side of the vehicle passed.

3. Pass to the right when meeting a vehicle moving in the opposite direction.

Among the clubs that have recently been aroused to renewed activity toward preventing this widespread tendency to recklessness are the automobile clubs of Cleveland, Rochester and Syracuse. A vigilance committee has just been appointed by the Rochester Club, whose object is to deal severely with members and chauffeurs who persistently exhibit recklessness and carelessness in driving, and a vigorous campaign is also to be waged against autoists carrying fictitious numbers.

President W. F. Bonnell, of the Cleveland Automobile Club, has issued a general letter to all of the members, calling their attention to the fact that the city ordinances are being violated every day. So flagrant has this become that the chief of police in Cleveland has ordered that bulletins shall be issued every forty-eight hours giving the numbers of cars which have been recklessly operated. President Bonnell requests the members to cooperate with the officials toward suppressing this evil. "Cooperation in this," he says, "will be helpful to the automobile manufacturers, the individual owner of a car, and to citizens in general."

MAXWELL EMPLOYEES' PICTURES TAKEN

NEWCASTLE, IND., July 26—The employees of the Maxwell factory here turned out en masse last week to have their pictures taken, and it was certainly a job on a wholesale scale. There are said to be 2,300 men working there, and though all did not get in, the photographer still earned his pay. The automobile in the center of the group is occupied by Benjamin Briscoe, president; J. D. Maxwell, superintendent, and F. D. Dorman, secretary of the Maxwell Company, and Colonel K. C. Pardee. Around them are grouped the district supervisors and branch house managers of the company.

Striking Exhibit of the Development of the Automobile Industry—Photograph of the Officials and Employees of

A. L. A. M. EXPERIMENTS TO OBTAIN QUIET MOTORS

THE engineers of the Association of Licensed Automobile Manufacturers have done a great deal of study and experimentation in the line of designing quiet-running motors, and have met with considerable success. One of the subjects of their experiments was the two-to-one gear set which is necessary on every four-cycle motor, which they found was a prolific source of noise.

Although the two-to-one gears do not at first glance seem to offer any designing difficulties, there are nevertheless some very important factors to be considered. Chief of these is the uneven or intermittent load due to the lifting action of the cams, causing intermittent and even reverse pressures on the gear teeth. To ameliorate this condition there must be considered the weight of the valve mechanism, the proper tension of the valve springs, the shaping of the cams to give smooth action to the valve plungers, and the proper pitch and lubrication of the gears and the permissible amount of back lash.

Some of the structural difficulties encountered are inaccurate machine work on the crankcase, causing variation in the distance between gear centers; unsuitable crankshaft and camshaft bearings, allowing the shafts to "jump" when the motor is running, and improper cutting of the gears themselves, causing them to warp after the strain of cutting the teeth is removed.

The principal cause of noise in the valves themselves is the too sudden impact of the valve on its seat. The descent of the valve should be arrested just before it strikes the seat, either by a slight rise in the cam or by a very gradual taper. The valve spring should be of sufficient strength to keep the roller in contact with cam. One leading experimenter says that with proper design the sound produced by the seating of the valve should not be heard at all with the manifolds in place and connected. The weight of valve for the best results is also an important consideration, and much may be accomplished by the suitable use of non-resonant material.

As for the rest of the motor, noise from pistons, connecting rods and crankshafts has been practically eliminated by proper design and accurate machine work, and proper lubrication and clearance.

APPLICATIONS READY FOR ATLANTA SHOW

ATLANTA, GA., July 26—Application blanks for the automobile show to be held here November 6-13 will be ready for distribution in a week or ten days, and will be distributed among the trade. All the details for this show, the first of importance ever held in the South, have been completed, and a decorative scheme is being planned that will be decidedly novel and will furnish a proper background for the first exhibition of the 1910 models. The show will be coincident with the opening of the new automobile track now under construction here. The general management of the show, which is under the auspices of the National Association of Automobile Manufacturers, will be in the hands of General Manager S. A. Miles and Alfred Reeves, and the Southern end will be cared for by Asa G. Candler, Edward Inman, and others. Applications for space may be made to the N. A. A. M., 7 East Forty-second street, New York.

A. M. C. M. A. SHOW COMMITTEE MEETS

The show committee of the American Motor Car Manufacturers' Association held a meeting at the New York office last Monday, at which the plans for the association's annual show next Winter were discussed. The show will be held in the Grand Central Palace and will open New Year's eve. Among other things, the decorative scheme was planned. S. H. Mora, chairman of the show committee, presided at the meeting, and others present were Benjamin Briscoe, D. J. Post, Motor and Accessory Manufacturers, and Alfred Reeves, A. M. C. M. A.

Pittsburgh's Public Safety Department is making life miserable for automobilists nowadays. Warrants were issued last week for more than 100 owners and drivers charged with either violating the speed ordinances or with having no drip pans on their cars. One day 350 autos were held up for examination.

oyees of ell-Briscoe Motor Company, at the Newcastle, Ind., Plant During Recent Convention of Maxwell Sales Managers

AUTOS IN MASSACHUSETTS' SUMMER MILITARY MANEUVERS

BOSTON, July 26—Plans that have been made for the annual Summer maneuvers of the Massachusetts militia, which will consist of a war game in the southeastern part of the State, with troops from New York, Connecticut, New Jersey and the District of Columbia as the enemy, contemplate the extensive employment of motor vehicles. Though the original plans, when it was expected that the maneuvers would consist of an attack on the coast, and in which motor vehicles were expected to play a most important part, have been abandoned, Adjutant General Grigham has not given up his idea of employing cars.

Briefly the war game consists in the landing of the troops from other States at Fall River and New Bedford with, presumably, the intention of marching on Boston. This will be the "Red army." Meantime, to defend Boston, the Massachusetts militia, constituting the "Blue army," will proceed from Boston toward Fall River and Boston, and the scene of activity probably will be in Bristol and Plymouth counties. In this section good roads are plenty, making it an ideal field for motor vehicles to demonstrate their value in military work.

For headquarters work Adjutant General Grigham has engaged the services of three White touring cars and a White ambulance, the negotiations having just been concluded by Manager J. S. Hathaway of the Boston branch. Walter G. Schmunk will be in charge for the White company, but a special officer detailed for the purpose will have charge of the cars in the field. These cars will be used for taking the officers from headquarters to any part of the territory that is being defended, and as the line probably will stretch out many miles, the service will require some long and speedy trips. They will also be used by the signal corps, for reconnoitering and for carrying despatches. While the maneuvers are on, all telegraph and telephone lines will be considered destroyed, so the commanding officer will have to send his orders and secure information by other means, and it is in this work that the cars are expected to prove most valuable. Private cars owned by officers of the different organizations also are likely to be used for similar purposes.

The problem of feeding several thousand men in the field, perhaps at a considerable distance from a city or from a railroad station, is to be a hard one, and the militia officers are negotiating with owners of motor trucks and expect to secure several of these vehicles for use during the maneuvers of August 14-22. Food of all kinds has been contracted for and will be transported by train to some point as near as possible to the expected center of activity during the maneuvers. From that point, however, it will have to be distributed to the various commands by motor trucks and by army wagons. The officers in charge believe that in this work the motor trucks can demonstrate an immense superiority over horse-drawn vehicles. Some of the separate commands are also trying to secure motor trucks, but the supply of these vehicles available is limited.

The motor cycle and the bicycle will be important in the maneuvers, and will be used to supplement the automobiles in scouting and in carrying despatches. It is planned to have a corps of motor cyclists and bicyclists attached to the headquarters of the "Blue army" and also to regimental and other headquarters, and soldiers who have motor cycles will probably be relieved from most duty, other than that incident to the use of their machines under orders from superior officers.

THE LATEST NEWS FROM OHIO'S GREAT TIRE-TOWN

AKRON, O., July 26—Local manufacturers confirm the announcement of an increase of 15 per cent. in the price of tires, but no complete price lists have been made public yet. Dealers have received new quotations, going into effect after July 16. The manufacturers say that a year ago the price of crude rubber such as was used in tires was less than $1 a pound, whereas, now it is $1.50, so that a raise in the price of the finished product is fully justified. The increase in the price of rubber was sudden, because the general depression kept the demand low; but when the demand again became brisk the price went up with a bound.

The new plant of the Falls Rubber Company, at Cuyahoga Falls, supplanting the old Superior Rubber Company of that town, will be ready to operate in three weeks. The officers are S. H. Sturgeon, president; W. G. Short, vice-president; H. F. Sechrist, secretary and treasurer, and William Sherbondy, superintendent, all of Akron. One of the products of the company will be a patented inner tube containing a layer of felt, for which great things are claimed.

The International Harvester Company this week started a final test of its new runabout of standard size, the machine, after a local test, being shipped to the central factory at Chicago to undergo the inspection of the company officials, to be followed by an inspection by the cost department that a sales price may be fixed. The new machines will be placed on the market next year, and will probably be named the International Runabout. It will be driven by a 20-horsepower four-cylinder engine. The car is of attractive appearance, and the color will be red. The company is also completing a touring car, and ran the first one to Albany, N. Y., this week, F. V. Kennedy, one of the prominent members of the company, driving the car. The International Harvester Company has a large plant here at present.

T. L. Pharr, of Pittsburg, drove his automobile fire engine from that city here this week for the purpose of equipping the engine with Swinehart tires. A test of the engine was made here, it working all right except near the canal it sank in the mud and some trouble was experienced. Stops were made at Newcastle and Youngstown on the way here. The engine is 115 horsepower, and when manned with eight men and 1,000 feet of hose weighs 9,400 pounds. It carries a 35-gallon gasoline tank, which the inventor claims will run the engine six hours, feeding four lines of hose. It also carries two four-gallon chemical tanks.

The Goodyear Tire & Rubber Company, whose tire and air bottle trade has grown immensely, has begun work adding two more stories to its office building. The plant was recently enlarged. All of the rubber tire plants in the city are making additions again this year.

The annual picnic of the Diamond Rubber Company was held on Saturday. The company gave 6,200 tickets to its employes for themselves and families. Free transportation was given to Silver Lake, where sports of all kinds were had with the shop men contesting. The Rubber Products Company, of Barberton, also run a free excursion to Brady's Lake.

Frank R. Tate, formerly of this city, has resigned as manager of the St. Louis branch of the B. F. Goodrich company to enter the automobile business.

A new product of the Diamond Rubber Company is an improved demountable rim. The company has also placed on the market an innovation in the form of a double tube motor cycle tire. The company has heretofore been making only single tube tires for motor cycles. The new tire has deep corrugations on the side to prevent side slipping. The company is having a very large demand for motor cycle tires.

What the Clubs Are Doing These Days

'FRISCO CLUBS TO HAVE NEW QUARTERS

SAN FRANCISCO, July 26—Members of the Western Automobile Club are rejoicing in the fact that they will soon have the Jefferson Square building on Golden Gate avenue transformed into a club house for their use. The club, which is composed of autoists from this and surrounding cities, has taken over the building containing 100,000 square feet of floor space. It will have swimming tanks, gymnasium, library, bowling and billiard rooms, and apartments for members on the two upper floors. The lower floor will be given over to club appointments. The officers of the club are Louis Mooser, president; and Dr. R. G. Hubbell, W. V. Lloyd, S. M. Samter and W. N. Wright constitute board of directors. The membership is limited to 500.

Interest is being taken in the forthcoming contest in Alameda county in September. Among the star entrants is to be Percy J. Walker, a well-known amateur, who will drive the Grand Prix Benz car in the race, providing the contest will be an open one. He will drive a 60-horsepower stock car of the same make, however, if only such cars are allowed to participate.

GOOD ROADS AND AUTO CLUB IN ONE

JACKSON, MISS., July 26—Automobile owners of this city and nearby towns have formed the Hinds County Good Roads and Automobile Club. While the formation of the body was inspired by the automobilists, its membership is not limited to them, and, in fact, a determined effort will be made to enroll all users of the highways. The club will become actively engaged at once in the spreading campaign for better roads in the South. The following officers were elected: President, Eugene Simpson; vice-president, R. S. Withers; secretary, W. D. McRaven. A committee composed of George C. McLaurin, of Clinton; H. L. Hicks and Floyd Williams, of this place, was appointed to consider the feasibility of macadamized roads through this section. Another committee, composed of R. S. Withers, of Clinton; Mason Birdsong, of Bolton, and J. C. Landen, of Jackson, was selected to prepare plans for the government of the club, and for launching a membership campaign.

MILWAUKEE CONSIDERING A CLUB-HOUSE

MILWAUKEE, WIS., July 26—The Milwaukee Automobile Club will meet in special session Thursday evening, July 29, to make a final decision in the matter of building a clubhouse. There has been some difficulty in obtaining an expression of sentiment as to the advisability of mortgaging the club's present properties to cover the cost of a building, but proxies will be legal at this meeting, and the vote will be final. The club owns a five-acre tract at Blue Mound and Cottrill avenues, west of Milwaukee, which would be a perfect location for a building. The clubhouse that is being planned would cost $12,000.

Thirty of the cars that participated in the parade at the Racine, Wis., Homecoming early this month will be entered in the parade to be held here August 3-7. There will be three sections, floral, novelty, and comic, and several hundred dollars are offered in prizes.

BINGOS TO HAVE INFORMATION BUREAU

BINGHAMTON, N. Y., July 26—The automobile club of this city proposes to establish in the office of the chairman of the touring committee an information bureau for the gratuitous use of tourists passing through here. The latest maps, route books, etc., will be kept for reference, and the bureau will keep informed as to speed traps, road closings for repair and other items of interest to tourists.

HAMILTON, ONT., ORPHANS GIVEN A RIDE

HAMILTON, ONT., July 26—The orphans of this city had the time of their lives at the outing given them by the Hamilton Automobile Club last week. About 300 of the youngsters turned out. Owing to a laughable mistake, they got a longer ride than was bargained for. The president and secretary of the club had laid out the route to what they thought was Oaklands Park; but when the procession arrived they found that it was really Bay View, and that the caterer was miles away. The trip to the real Oaklands was made in record time. Indoor baseball, football and foot races were the features, and a magnificent supper topped off the day.

HARTFORD CLUB GIVES ORPHANS AN OUTING

HARTFORD, CONN., July 26—Last Tuesday afternoon the Automobile Club of Hartford held its long-deferred annual orphans' outing. Several previous attempts had been blocked by bad weather. About 150 children from the Hartford asylum were the guests, and even more cars than were needed turned out. After the parade through the city the procession headed for Goodwin Park, where the children were turned loose. There were abundant refreshments and everybody had a good time.

GENEVA, N. Y., HAS A WIDEAWAKE CLUB

GENEVA, N. Y., July 26—Sixty cars turned out for the "joy ride" of the Geneva Automobile Club, which passed through Phelps, Newark and Palmyra and arrived in Canandaigua in time for supper. It was one of the most enjoyable events that the club has participated in. Later the automobilists of Newark, N. Y., who contemplate organizing a club, visited Geneva in grand style and were received by a brass band; after a parade through the city a joint banquet was held, at which the mayor spoke, and much good roads talk was indulged in.

COLUMBUS' CAREFULLY COMPILED BOOK

COLUMBUS, O., July 26—The Columbus Automobile Club has issued the first number of *The Bulletin*, which was announced some time ago. The booklet is attractive with plenty of advertisements and all the live news of the club. Handsome cuts of the interior of the club are printed as well as the annual report of the secretary and treasurer. A full roster of the membership is one of the features.

AUTOISTS OF ALLEGANY, MD., ORGANIZE

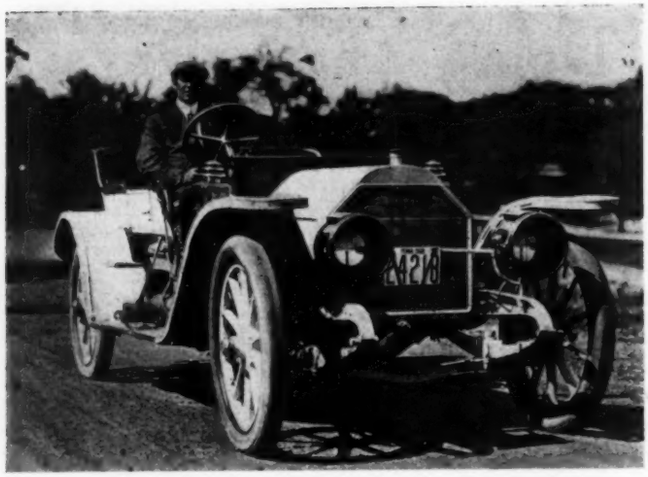
BALTIMORE, July 26—The Automobile Club of Allegany County has been formed with fifty members. It will be a branch of the advisory council of the Automobile Club of Maryland. The president of the new organization is H. H. Amack, and W. C. Devecmon is secretary.

TRUMBULL, O., AUTO CLUB GIVES BANQUET

TRUMBULL, O., July 26—The Trumbull Automobile Club, one of the strongest organizations in the Western Reserve, held a big banquet last week at which more than a hundred guests were present. The club is doing good work in the vicinity.

AUTO CLUB ORGANIZED AT ALTOONA, PA.

ALTOONA, PA., July 26—The Altoona Motor Club has been formed by automobilists of this city. The officers elected are: W. L. Hicks, president; E. J. Lomnitz, secretary, and W. W. Blake, treasurer.



Salesman Holden and His Business-Getting Stearns

A "STEARNS CHASE" THROUGH FOUR STATES

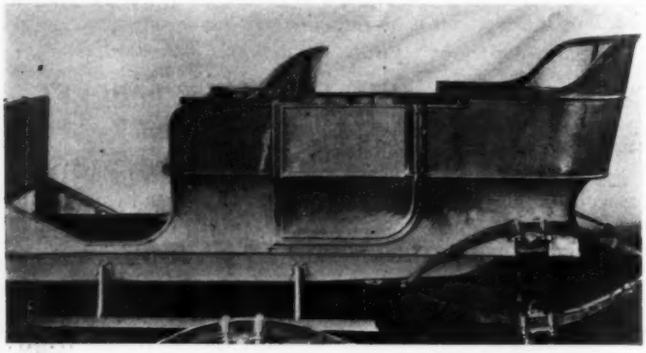
A. S. Holden, one of the district salesmen of the F. B. Stearns Company, kept his 30-60 shaft-driven Stearns on the road continuously from May 29 till July 17. Leaving Cleveland on the former date, he drove through Columbus to Cincinnati, through West Virginia, back again through Ohio and into the coal regions of Pennsylvania to Pittsburg. After spending considerable time in that vicinity he kept on through Ligonier and through New York State back to Cleveland, via Erie, Pa. In its fifty-one days on the road the car averaged 85 miles a day, and for three consecutive days it averaged 210 miles. It ran perfectly from the start, no attention having been given it beyond filling the tanks. He will start again shortly in the same car, and expects to make another trip of the same length.

DETROIT COMPANY FOR COMMERCIAL CARS

DETROIT, MICH., July 27—A new automobile company has just been organized here, in which the principal movers are the officers of the Chalmers-Detroit company. The new concern will be known as the Fairview Motor Car Company. The capital stock has all been subscribed, and work will be started at once on a $150,000 plant. The new company will manufacture commercial vehicles and taxicabs.

A TOURING BODY OF CAST ALUMINUM

The touring bodies to be fitted to the 1910 Marmon cars almost completely dispense with the use of wood. This material is only found in the mahogany dash, the floors and a thin strip between the body and the steel chassis frame. All the rest of the body is of metal, the lower panels and the doors being of cast aluminum, and the upper panels of sheet aluminum. This construction makes impossible any shrinking or warping, with consequent misfits of doors and seats, and is stronger.



Cast Aluminum Bodies Used on 1910 Marmon Cars

WITH THE REGAL ON WESTERN PRAIRIES

DENVER, COL., July 24—When the Regal transcontinentalists planned their schedule they overlooked two factors that seriously interfere with adherence to the timetable. The first has been with them ever since leaving New York in the shape of friends and the general public, who, with their entertainments, consumed several hours each day. The second, the Iowa gumbo has just appeared in its malignant form after the heavy rains throughout that section. Still the car keeps on schedule and is covering the road in great shape.

The transcontinentalists left Chicago at noon on the twelfth, and, passing through Aurora and Rochelle in good time, finally stopped at Morrison. The next morning, after a short run, they came to the Mississippi, only to find a twenty-foot gap in the bridge, which the foreman of the repairing gang told them would take at least two hours to close. Of course it was nearer three hours before the last plank was down and they were able to continue their journey. The next day's run was to Cedar Rapids, and after that the schedule named Carroll, Ia., as the stopping place. Night found them, however, at Boone, fifty miles short, and for good reason, as the rains had converted the roads into bottomless quagmires of the purest gumbo. Several times the Remy magneto was submerged in muddy water, but it never refused to spark.

Transcontinental Regal Following Prairie Trail

The day after leaving Omaha was spent principally in crossing and recrossing the North Platte River, which winds over half the State. Here they overtook in mid-continent a car bound for Seattle and another from New Mexico headed for Detroit. The Seattle car joined forces and they continued together nearly to Ogallala. The roads became impassable, and the tourists were forced to take to the prairie alongside, leaving behind them a trail of cut fences and choking alkali dust. At Sterling they found the nicest and cleanest little hotel of the trip—a godsend to weary travelers.

Leaving Sterling a rain drenched them for the first time since leaving New York, relieving the heat and making the sand more passable. They went up a long hill late in the afternoon and at the top they found themselves facing the main chain of the Rockies. To the north Long's peak and to the south Pike's Peak loomed up majestically. The sun broke through the clouds as it was setting behind the range and clearly defined the magnitude of this great wall of mountains, which set across the path to the coast like a forbidding wall. Denver the tourists reached at 7 p. m., 2367 miles out from New York in 13 1-2 days' driving.

Dixon, Ill.—Alderman James Gaffney has started the erection of an up-to-date garage on East First street, between Ottawa and Crawford avenues.

Six-Story Addition to Stoddard-Dayton Plant, Now Building

When the new structures are completed the Dayton Motor Car Company, Dayton, Ohio, will have 100,000 square feet increase in floor space. This will accommodate 400 additional workmen, and $75,000 in new equipment is ready to take its place on the floors.

Extra Bodies Are Popular—An idea which seems to be growing in popularity is that of having two bodies, one open and one closed, to be used interchangeably on the same chassis. The Pierce-Arrow Motor Car Company of Buffalo reports that about 22 per cent. of its orders during the past season called for extra bodies. The Pierce chasses are the same for all touring, landaulet and limousine models, so that a man buying a car for delivery during the Summer months can have an open touring body for the warm weather and in the Fall can substitute for this a closed body. The advantages of this idea appealed to President Taft when ordering his car. He had a touring body built for his six-cylinder, 48-horsepower Pierce landaulet, and this has now replaced the enclosed body used in Washington during the inauguration.

Ford Victor Fire-Scarred—The Ford which won the New York-Seattle race had a narrow escape from ending its career once and for all at Prosser, Wash. Just after crossing a district known as "Horse Heaven"—decidedly not a heaven for automobilists—Scott and Smith, the drivers, stopped at this town to take on gasoline. The usual crowd gathered, and one bone-headed individual struck a match on the tank. Instantly the car was in flames, and nothing could be done until it had burned itself out. Luckily the machinery of the car was not injured. The tank's usefulness was ended, however, and for the rest of the journey the fuel had to be carried in a can on the footboard.

Firestone Makes Demountable Rims—The Firestone Tire and Rubber Company is sending out to the trade blue-prints and other matter descriptive of the Firestone demountable rim. The Firestone Company recommends the use of quick detachable tires in connection with this rim because they are so much easier to remove and replace. It is prepared, however, to supply the rim with regular clinchers on order, although it is difficult to fit these with the short-stem staybolts required. Another booklet contains in fac-simile form telegrams received from the Ford and Acme drivers in the recent New York-Seattle race, telling of the excellent service their tires are giving.

Wayne and Northern Parts—A. L. Austin, formerly connected with the Northern Automobile Company and with the E. M. F. Company, and A. O. Dunk have organized the Auto Parts Company, of Detroit, to be located at St. Antoine street and the Michigan Central Railroad. The company has purchased from the E. M. F. Company all parts, drawings, patterns, jigs and special tools for making replacement parts of Wayne and Northern cars and will devote its particular attention to repairing cars of these two makes.

Grabowsky Sells Treasury Stock—The business of the Grabowsky Power Wagon Company, of Detroit, has developed so rapidly that it was recently found necessary to offer for sale all the treasury stock in order to obtain sufficient working capital. The stock was quickly taken up by Detroit capitalists, and the directors are now thinking of increasing the stock from $300,000 to $1,000,000. The present increase of capital will be employed in building an addition to the factory so as to effect a considerable increase in next year's output.

New Tire on the Market—The Ohio Tire Company, with a capital stock of $10,000, has been incorporated under the Ohio laws by Thomas Midgley, B. G. Huntington, Louis Fink, J. A. Pfeifer and M. E. Murphy. Mr. Midgley is general manager of the Midgley Mfg. Co., of Columbus, which manufactures the Midgley automobile wheel. The new company will locate a factory in Columbus for the manufacture of a tire which is said to embody many improvements.

Milwaukee Buys Two Cars—The Milwaukee common council has authorized the purchase of a Pierce-Arrow touring car for the use of the bureau of detectives. The department also has an auto patrol wagon in service. The purchase of a Peerless touring car for the joint use of council committees and the board of public works, after being delayed several months by injunctions, has finally been authorized and paid for.

Large Order U. & H. Master Magnetos—As an indication of the prospects for 1909, the J. S. Bretz Company, New York City, reports an order from the Interstate Automobile Company of 3,000 U. & H. master magnetos. All through the West, among the makers of cars, the demand for magnetos is brisk, indicating that many cars are to be put out for next year and magnetos will be regular.

Interesting Registration Figures—The records of the secretary of state of Wisconsin show that up to June 1, 1909, 7383 cars had been registered in that State. In point of numbers the Rambler leads, having 733 to its credit, with the next three makes in order having 697, 598 and 487 respectively. Illinois has already passed the 10,000 mark, and in this State, too, the Rambler leads.

Fisk Tires in Racing—A number of entrants in the coming 24-hour race at Brighton Beach will use Fisk tires and rims. These have in the past been used more by tourists than by racing drivers, but the latter seem to be recognizing the value of the bolted-on type of tire, as these have been represented in more contests this year than ever before.

Kinsey Ready for Business—The new plant of the Kinsey Mfg. Co. at Toledo, O., will be ready for occupancy August 1, at which time 100 men will be started. The company has just been incorporated with a capital of $100,000 by Isaac Kinsey, H. V. Hawk, Willard Corbin, W. C. Smith and J. N. Van Deman.

Oily Hospitality—When the Glidden tourists passed through Jackson, Mich., the American Oil Company of that city gladdened the heart of each driver with a present of a gallon can of oil, a pound box of grease and a pound of waste.

A Carriage-Builder in Line—The L. Burg Carriage Company, of Dallas City, Ill., has taken up the manufacture of automobiles and will have both touring and roadster models. The Rutenber motor will be used.

IN AND ABOUT THE AGENCIES

Studebaker, Philadelphia—In anticipation of the expected large increase of business due to the advent of the Studebaker-Flanders "20," and the taking over of the E-M-F car from the Foss & Hughes Motor Company, Manager E. V. Stratton, of the Philadelphia Studebaker branch, is preparing for an extensive enlargement of the present quarters.

Packard, Hartford, Conn.—Milton J. Budlong, president of the Packard Company, of New York, is authority for the statement that the Packard Company will establish a branch in this city. The location has not been determined. It is understood that R. B. Sloan, of the New York branch, will be manager.

Rambler, New York City—The retail business of the Homan & Schulz Company has been taken over by the Rambler branch house in New York, located at 38 West 62d street. The branch will continue to handle as before the Rambler wholesale business throughout the East.

Empire Tires, Philadelphia—The Empire Tire Company, of Trenton, N. J., last week opened a branch house at Broad and Wood streets, Philadelphia, with E. B. Richardson as manager.

Continental Tires, Omaha, Neb.—The Continental Caoutchouc Company, New York City, announces that it has appointed the Baum Iron Company, of Omaha, Neb., distributing agents for Continental tires and rims in the State of Nebraska.

Hotchkiss, New York City—J. W. Delamater, manager of the Hotchkiss Import Company, has completed the alterations in the garage at 20 West Sixtieth street, which is to be the home of the Hotchkiss.

The Standard Automobile Company, of Pittsburgh, Pa., will establish a branch house in the Deveeny building, in Uniontown, Pa. It will have an agency for Peerless, Mitchell and Baker electric.

Hudson, New York City—The A. Elliott Ranney Company, metropolitan agent for the Hudson, has leased a suite in the Automobile Building, 1777 Broadway, and will take possession August 1.

Jackson and Babcock, Houston, Tex.—P. J. Lea, W. T. McKallip and Elmer Abbey have organized a company to take the agencies of the Jackson and the Babcock electric.

Jewel, Pittsburgh, Pa.—The Jewel will hereafter be shown in Pittsburgh in the Banker Automobile Palace block on Baum street, E. E., which will be ready about August 1.

American, New York City—The headquarters of the American Motor Sales Company have been removed to the northeast corner of Broadway and Fifty-seventh street.

PERSONAL TRADE MENTION

Ernest Coler has assumed charge of the Maxwell-Briscoe Motor Company's new publishing department. The growing interests of the company have made the creation of the new department desirable. Mr. Coler, who has looked after the Maxwell's publicity for the past two years, will continue to publish *The Co-Operator*, and will also be responsible for most Maxwell literature.

Berry Rockwell, late of the Railway Steel Spring Company, and well-known through his work as field secretary of the Sacramento Valley & Eastern Railway Company, and secretary of the Hotel Knickerbocker, New York, has accepted the position of advertising manager, Maxwell-Briscoe Motor Co.

A. L. Bolster, who has been connected with the Fisk factory at Chicopee Falls, Mass., ever since the organization of that company, has succeeded K. B. Harwood as manager of the Philadelphia branch. The latter will devote his energies to special outside factory representative business for the Fisk company.

Edwin E. Peake has been appointed manager of the Regal Sales Company of Detroit, which is to control the sales of the Regal car in Michigan. He was formerly connected with the sales department of the Buick Motor Company.

C. H. Hill, formerly with the Cadillac Company of New York, has left that company to take a position with the Haynes Automobile Company.

RECENT BUSINESS CHANGES

The Motor Car Company of New Jersey has dissolved partnership. In future the business will be managed by W. V. Snyder, Jr., who will retain the agency for the Matheson. The withdrawing members, M. Uppercu, C. Fisher and E. G. Ward, have formed a new concern, which is to handle the Cadillac.

Standard Thermometer Company, Boston—This company, at 65 Shirley street, Boston, has purchased the speedometer business of the Parker Mfg. Co., of the same city, and will continue to conduct the business on the same principles as heretofore.

Auto-Automatic Windshield Company Moves—The Auto-Automatic Windshield Company has moved its offices to 870 Woodward avenue, Detroit, in the new George building, which will be devoted exclusively to the automobile trade.

TAXICABS AND TRANSIT

Hartford, Conn.—Taxicabs are constantly increasing in numbers here, and the horse cabbies are complaining bitterly. Many of the garages operate taxicabs of the Maxwell, Mitchell and Elmore makes and have all the business they can handle.

Pittsburgh, Pa.—The incorporators of the Pittsburgh Taxicab Company intend to increase the capital of the concern from $100,000 to $200,000. The company has been very successful this summer.

RECENT MICHELIN VICTORIES

Continued success of Michelin tires in every form of road and track contest has been emphasized again by a large number of victories within the last thirty days. The list includes first and third places in the 290-mile Denver Motor Club stock car road race, July 5; the 100-mile track record at Columbus, O., July 3; the kilometer, the mile and the free-for-all at the annual meet at Wildwood, N. J., also on July 5, and the 25-mile Canadian championship at Montreal, July 9. At the Illinois State Fair Meet, July 10, Michelin tires won the 5-mile and the 50-mile contests.

In the Indiana Trophy road contest on June 18, over 232.74 miles of Lake County, Indiana, roads, Michelins secured first, second, third, fourth and fifth places, and first, third, fourth and fifth in the competition on the following day for the Cobe Trophy over the same course, but totaling 395.66 miles.

At Readville, the Harvard Trophy and a new 25-mile world's track record were secured by Michelins, as well as the Bailey Trophy for winning the Owner's 5-mile stock car contest. The Automobile Trade Trophy, too, was gathered into the Michelin camp. This was a free-for-all stock car event. Four other numbers of less importance were also captured.

The Point Breeze Meet saw a wide variety of contests, and De Palma established a new track record on Michelins. Other events won on these well-known tires at Point Breeze included a 100-mile contest, two for 10 miles, one each of 50 and 5 miles.

RECENT INCORPORATIONS

Imperial Motor Car Company, Hamilton, O.—Incorporated with a capital stock of $500,000 to manufacture automobiles, by C. U. Carpenter, Stanley Helvey, G. E. Helvey, G. A. Rentschler and F. B. Rentschler.

Chicago Taxicab Company, Chicago—The Chicago Taxicab Company has filed a statement announcing that its capital stock has been decreased from $3,000,000 to $500,000.

Grout Automobile Company, Orange, Mass.—Capital, $150,000. To take over the business of the Grout Brothers Automobile Company.

Sauer Motor Trucks, West Orange, N. J.—Capital, $200,000. Incorporators: W. D. Sargent, G. M. Judd and E. H. Fallows.

Crow Motor Car Company, Elkhart, Ind.—Capital, $50,000. Incorporators: E. C. Crow, F. A. Howe and M. E. Crow.

Animated Scene in Hudson Motor Car Company Testing Yard Adjacent to the Detroit Factory

This newly-formed company has already received deposits from actual purchasers of over one thousand cars, and so has found it necessary to push the factory organization to the limit. The above scene in the testing yard gives a very good idea of the prevailing activity, necessitated by plans and contracts to deliver four thousand cars during the balance of this year and next.